Andrés Ham, Darío Maldonado and Carlos Santiago Guzmán-Gutiérrez*

Recent trends in the youth labor market in Colombia: Diagnosis and policy challenges[1]

Abstract

This paper characterizes the labor market of youth in Colombia from 2008 to 2017. We estimate labor market indicators for individuals aged between 14 and 28 years using microdata from Colombia's household surveys over the study period. Our estimates document the main patterns and trends in the labor market of youth in labor force participation, employment, unemployment, informality, and earnings. We compare these statistics with the same indicators of adults (individuals aged between 29 and 65 years), and explore differences in characteristics within youth such as gender, region, educational attainment, socioeconomic status (SES), and experience. Results indicate that participation rate of young Colombians have increased in recent years, but are mainly employed in low-quality jobs namely unsalaried and informal. We also document marked inequalities in labor market outcomes across youth characteristics. We provide a series of recommendations to guide future youth labor policy based on these estimates as well as the critical analysis of recent youth policies in Colombia.

Current version: September 16, 2020
Keywords: youth, labor market, transition into the labor market, labor policy, Colombia
JEL codes: J08, J13, J21, J24, O17
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[1] We are grateful for comments and feedback from seminar participants at Universidad de los Andes and received valuable contributions from two anonymous referees that greatly improved this paper. AndrÃ©s Mateo Valderrama Ramos did an outstanding job as research assistant, which was further complemented by Kevin Steven Mojica Muñoz in the revised version. David González provided translation and editorial services. The usual disclaimer applies.

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Cite as: Ham et al. *IZA Journal of Labor Policy* (2021) 11:7.
https://doi.org/10.2478/izajolp-2021-0007

1 Introduction

The labor market is closely linked with economic inequality and the possibility of an economically sustainable society (Hacibedel and Pouokam, 2019). Quality job opportunities increase the level of welfare and reduce the dependency of individuals on social assistance policies (Card et al., 2018). Youth in particular, tend to experience unstable inclusion into the labor market, which affects their long-term professional goals as well as personal decisions of marriage and family formation (Aassve et al., 2007; Berzin, 2010; Luijkx and Wolbers, 2009; MacDonald, 2011; Steijn et al., 2006). Understanding the problems faced by youth helps visualize the challenges faced by young people in contemporary labor market and articulate policies to help them overcome future obstacles.

Economic theory suggests that youth have worse employment results than adults due to life-cycle dynamics (Heckman, 1976). After completing their education and starting their working life, young people have little or no experience or no knowledge about how the labor market operates. These gaps in knowledge are supposed to diminish over the time and along with experience. However, the transition into employment is more difficult in practice than this model assumes. Youth often face difficulties in finding and maintaining a job (Manacorda et al., 2017). Such precarious initial conditions in the labor market can have everlasting impacts throughout young people's lives in terms of unemployment, informality, and income. These consequences are commonly referred to as the "scarring" effects of youth labor market experiences.[2] This context justifies investigating the current disadvantages faced by youth in order to better understand and facilitate their transitions into the labor market.

This paper analyzes the employment situation of Colombian youth using data from official household surveys (GEIH, for their acronym in Spanish) over the period 2008–2017. We use the definition of youth proposed by the Colombian government: people aged between 14 and 28. We document recent patterns and trends for a wide range of youth employment indicators and compare the results with those corresponding to the adult population (defined as people aged between 29 and 65). Additionally, we explore differences among the youth with respect to gender, region, educational level, SES, migration, and level of experience. This evidence provides up-to-date information on the situation of youth in Colombia and fosters an in-depth discussion of the current state and future role of labor policy to integrate young people into labor markets.

Colombia has experienced a series of accelerated changes and development in the past few years, and these changes may affect the performance of young people in the labor market. Furthermore, the country has also made significant public policy efforts aimed at promoting the employability of young people, with emphasis on the most vulnerable sections. For instance, active labor market policies such as *Youth in Action* have provided training to vulnerable individuals to improve their employability and recent fiscal reforms have granted subsidies to firms so that firms can hire workers without previous experience. The government has also invested in a national intermediation agency to map and match the requirements of employers and details of workers.

We first compare Colombian youth labor market indicators to the same statistics in other Latin American countries, using the most recent household survey from 2015 to 2016, and find

2 See Arulampalam et al. (2001), Gregg and Tominey (2005), Nordstrom (2011), Cruces et al. (2012), and Schmillen and Umkehrer (2017) for more detail on the theory and evidence of scarring effects.

that Colombia lies in a relatively favorable position on some youth labor market indicators but lags behind on other measures. Labor force participation and employment rates are above the regional average, and informality rates are below the average of other countries in the region. However, youth unemployment rates and its duration are among the highest in Latin America. We also study gender gaps. Gender gaps in labor force participation, employment, and informality are similar to the gaps for other countries, but the unemployment gender gap is found to be the second highest in the region.

GEIH results indicate that Colombian youth face disadvantages in the labor market compared to adults. Adults have higher labor force participation, employment rates, better quality jobs, and higher earnings. However, our estimates suggest that youth are catching up to adults, w evidenced by rate of change in indicators in these labor markets. When considering many dimensions that include participation, unemployment, and informality, the situation of young people has improved in recent years. These findings suggest that although the relative standing of youth with respect to adults remains unfavorable, young people are now participating more in the Colombian labor market.

The most vulnerable youth are women— especially living in rural areas, individuals with low level education, from lower SES, and youth without work experience. The level of inequality has fallen over time in some of these dimensions (e.g. women vs. men; and unskilled vs. skilled workers). The higher labor market attachment that is found in the aggregate is partly due to higher labor force participation of vulnerable groups. This greater labor market attachment, however, is explained by an increase in low-quality jobs: unsalaried and informal. These jobs tend to have lower average wages and may have lasting consequences if youth are not able to transition toward more productive employment, with better earning conditions and social security coverage (Cruces et al., 2012). These results suggest that the current problem regarding young people is not whether they participate or not in the labor market, but on the quality of the jobs they are accepting.

Youth employment policies in Colombia have followed recent global practices (Kluve et al., 2019), which can be divided into three strands: active labor market policies, demand-side subsidies for firms, and measures to improve job search and matching. The first one deals with the policies whose main objective is to generate employment by providing training to workers. The second one is about measures that seek to stimulate labor demand through exemptions or tax benefits for employers or entrepreneurs. The last measures aim to improving job search, mainly through labor market intermediation. In the past few years, there has been an increase in the number of employment policies focused on youth. These policies seem to be associated with the higher labor attachment that we observe in our estimates. Nonetheless, due to the lack of causal evidence on the impact of these policies, we conclude that further evidence and efforts are required to create more and better jobs for Colombian youth.

We provide three recommendations to guide future youth labor policy in Colombia and similar countries. First, it is necessary to articulate existing measures so that they constitute an integral policy instead of disjointed efforts. Second, recent targeted policies such as 40,000 First Jobs and the Pro-Youth Act should be evaluated to acquire evidence on their effectiveness. Many youth programs do not consider an evaluation in their design nor are suitable for evaluation using observational data. The resulting evidence from these evaluations is paramount to determine the type of measures and works to help youth in the labor market and why. Finally,

it is crucial to prioritize the design, implementation, and evaluation of policies that, in addition to incentivizing formality at the extensive and intensive margin (Ulyssea, 2018) and facilitate transitions from the informal to the formal sector.

This work contributes new knowledge on youth labor market results in Colombia. We update labor market statistics and summarize recent public policies for young people in order to characterize their current situation. To the best of our knowledge, the last such diagnosis for Colombia was done by (Farné 2009). We also highlight the role of youth experiences on long-term outcomes and the need to learn more about how they affect labor trajectories, since youth experiences often produce scars in their minds that follow individuals all along their entire working lives and have everlasting consequences on their welfare. This paper also discusses the current scope and challenges of youth labor policy to foster a debate on how to facilitate a smoother transition of this population into the labor market. Although we focus on a specific age group, we hope to provide relevant evidence to discuss the challenges facing labor policy at the national-level. For instance, we seek to complement recent work in Colombia that provides a broader view on labor policy in the country, such as (Casas et al., 2018). Since other countries in Latin America have the similar scenario like in Colombia, our results could be useful for researchers and policymakers concerned with youth labor market outcomes in other countries also.

The remainder of this paper is organized as follows. Section 2 reviews the available evidence on the transition of youth into the labor market in Latin America and determines the relative position of Colombian youth in the region. Section 3 describes the household survey data we employ in our analysis of the situation of Colombian youth in Section 4. Section 5 reviews the past and present of youth labor market policies in Colombia and reflects on their future. The last section concludes the paper.

2 The labor market situation of youth in Latin America

There is ample literature that stud**ied** youth labor market outcomes across the world (Fares et al., 2006). Both in developed and developing countries, this age group is found to be in systematically worse conditions compared to adults. Given the abundance of evidence on the subject at the global level, we focus on the situation of the youth in Latin America and Colombia in this section.[3]

The labor force participation rates of youth in Latin American countries have decreased over the last few decades. Part of this reduction is due to greater investment in education throughout the countries in the region, which motivates people to accumulate more human capital (Viollaz, 2014). The other explanation for lower labor force participation is the increase in the percentage of youth who are Not in Employment, Education or Training or NEETs (Tornarolli, 2017). The observed reduction in labor force participation thus reflects an increase in two kinds of behaviors among youth: (a) some spent more time studying in school, and (b) some chose to remain inactive. Both behaviors reduce the labor participation for this age group, but each one has different policy implications.

People who participate in the labor market can be either employed or unemployed. The observed reduction in youth labor force participation has resulted in lower employment and

3 See Bell and Blanchflower (2010), Görlich et al. (2013), and Nilsson (2018) for recent evidence at the global-level.

more unemployment for young people (Viollaz, 2014). On average, youth unemployment consistently doubles the rate for unemployed adults (Fawcett, 2002). Among the explanations for the high levels of youth unemployment is the unfavorable economic performance in several countries in Latin America (ILO, 2017) and the instability in the labor market situation of youth (Manacorda et al., 2017). Therefore, some individuals are seeking work unsuccessfully while others are frequently changing jobs during their first years in the labor market. Both situations can have lifelong consequences on future labor market outcomes because of scarring effects (See Arulampalam et al., 2001; Gregg and Tominey, 2005; Nordstrom, 2011; Schmillen and Umkehrer, 2017).

Youth are at a disadvantage not only with their lower labor market attachment, but also with the quality of the jobs within reach. In particular, labor informality has become one of the most important employment issues in the region. Labor informality is often defined as a precarious work in which workers do not contribute to the social protection system, and therefore do not qualify for pensions or other work-related benefits (Gasparini and Tornarolli, 2009). On average, almost half of Latin Americans are estimated to be informal workers. Among youth, informality rates can be higher by a maximum of 20 percentage points (Viollaz, 2014). Due to the high unemployment levels, many young people only find jobs in the informal sector. This situation raises concerns because few people are able to transition from the informal to the formal sector (Shehu and Nilsson, 2014) and there is evidence suggesting that informality also has scarring effects (Cruces et al., 2012).

Although these paragraphs summarize the average situation in Latin America, it is important to note that there is significant heterogeneity across and within countries. Young people are less vulnerable in some countries (Viollaz, 2014). Better socioeconomic conditions are often associated with better employment results (SEDLAC, 2018), which is why Chile tends to fare relatively better than Bolivia, Peru, and the Central American countries. Many studies also find pronounced differences between countries with respect to characteristics such as gender, educational level, and area of residence (rural or urban). Women, less-educated workers, and youth living in rural areas are commonly shown to be in worse labor market conditions compared to their counterparts.

The literature provides different explanations for the vulnerability of Latin American youth in the labor market. Compared to adults, youth are exposed to greater uncertainties and risks in their labor market attachment (Fawcett, 2002). One source of instability has been the mixed economic performance of several countries since the turn of the century, as young people are one category of the populations most affected by recessions (ILO, 2017). Insecurity is another source of risk for youth. Latin America is one of the most violent regions in the world, and this has an effect on young people's labor market decisions (Zuluaga-Gordillo et al., 2018). Despite the fact that youth are accumulating more education nowadays, there is a documented disconnection between the skills acquired in formal education and the actual requirements of the labor market (Bassi et al., 2012). Another barrier is the lack of work experience. Young people face difficulties to gain experience in formal jobs, which affects their chances of achieving job stability (Manacorda et al., 2017).

Given these findings, it is natural to inquire: how does the situation of Colombian youth compare to young people in other Latin American countries? We answer this question in two ways. First, we review the existing literature. Second, we carry out a comparative analysis

using information from the Socioeconomic Database for Latin America and the Caribbean (SEDLAC, 2018). SEDLAC calculates comparable labor market statistics for young people aged between 15 and 24 from household surveys. The advantage of SEDLAC data is that variables are defined identically in each survey and samples are the same, in order to maximize comparability across countries.[4]

There are several sources that provide statistics on the youth labor market in Colombia, but few detailed analyses of those indicators. The National Administrative Department of Statistics (DANE, for its acronym in Spanish) publishes regular bulletins with employment indicators for the population aged between 14 and 28. The youth participation rate is about 60%, the employment rate is 48.9%, while the unemployment rate is 16.1% (Dane, 2019). (Ospina-Cartagena et al., 2017) find participation patterns in Latin America similar to those just described: a higher proportion of youth engaged in full-time studies and a growing number of NEETs. The International Labor Organization (ILO) conducted a survey to document the transition of Colombian youth into the labor market (ILO, 2016). The results of the survey confirm the regional evidence: (i) the skills acquired in formal education do not match the skills required by markets; (ii) more education does not reduce unemployment nor the probability of being NEET, and (iii) the quality of available jobs (predominantly informal) does not contribute to improve labor market conditions for youth. Both reports find pronounced differences across gender and regions among Colombian youth. This evidence suggests that Colombia's situation is similar to that documented across the region.

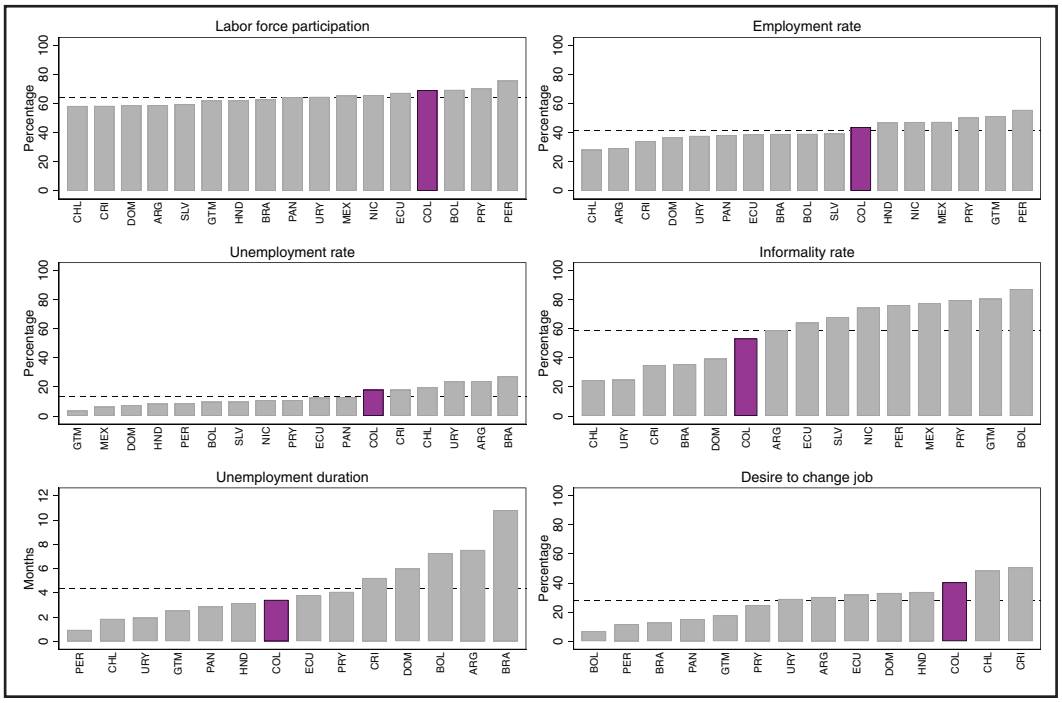
Although Colombia follows the same trajectory as other Latin American countries, we do not know its relative position in the region. Are Colombian youth faring better or worse than their counterparts in other countries? Using data from (SEDLAC, 2018), we compare labor force participation rates, employment rates, unemployment rates, informality rates, unemployment duration, and desire to change jobs for Colombian youth to the same indicators for other countries in the region. We reiterate that youth are defined as individuals aged 15–24 in the SEDLAC data.

Figure 1 plots these indicators and highlights Colombia's relative position in each of them. This figure uses data from SEDLAC calculated from surveys circa 2015–2016. The dashed lines represent the regional average. On average, youth labor force participation is 64.3%. Colombia is above the regional average since 69.1% of Colombian youth participate in the labor market.[5] In relative terms, this rate ranks fourth among the 17 countries for which information is available. There are two sources for this labor force attachment: employment and unemployment. Colombia's employment rate is above the regional average (43.8% vs. 41.3%) and is ranked seventh (from highest to lowest). Colombia's youth unemployment rate is above the average existing in Latin America (18.1% vs. 13.6%). If we rank Latin American countries from lowest to highest unemployment rate, Colombia's position will be 12 out of 17. With respect to the level of labor informality, which is measured as the percentage of people who do not contribute to pension funds (the SEDLAC definition of informality does not include health care), Colombia is below the regional average; it has a lower youth informality rate and is ranked sixth in terms

4 We used the statistics published on the SEDLAC's website in May 2018, which can be consulted in: http://www.cedlas.econo.unlp.edu.ar/wp/estadisticas/sedlac/.

5 These numbers differ from Dane (2019) for two reasons. First, the reference year for SEDLAC corresponds to data for the third quarter of 2016. Second, young people are defined differently in both statistics. SEDLAC defines youth as people aged between 15 and 24, whereas DANE defines it as people aged between 14 and 28.

Figure 1 Labor market indicators for Latin American youth.



Source: Authors' calculations on data from (SEDLAC, 2018).

Notes: Youth are defined as people aged between 15 and 24. The dashed lines represent the regional average. ARG=Argentina, BOL=Bolivia, BRA=Brazil, CHL=Chile, COL=Colombia, CRI=Costa Rica, DOM=Dominican Republic, ECU=Ecuador, SLV=El Salvador, GTM=Guatemala, HND=Honduras, MEX=Mexico, NIC=Nicaragua, PAN=Panama, PRY=Paraguay, URY=Uruguay.

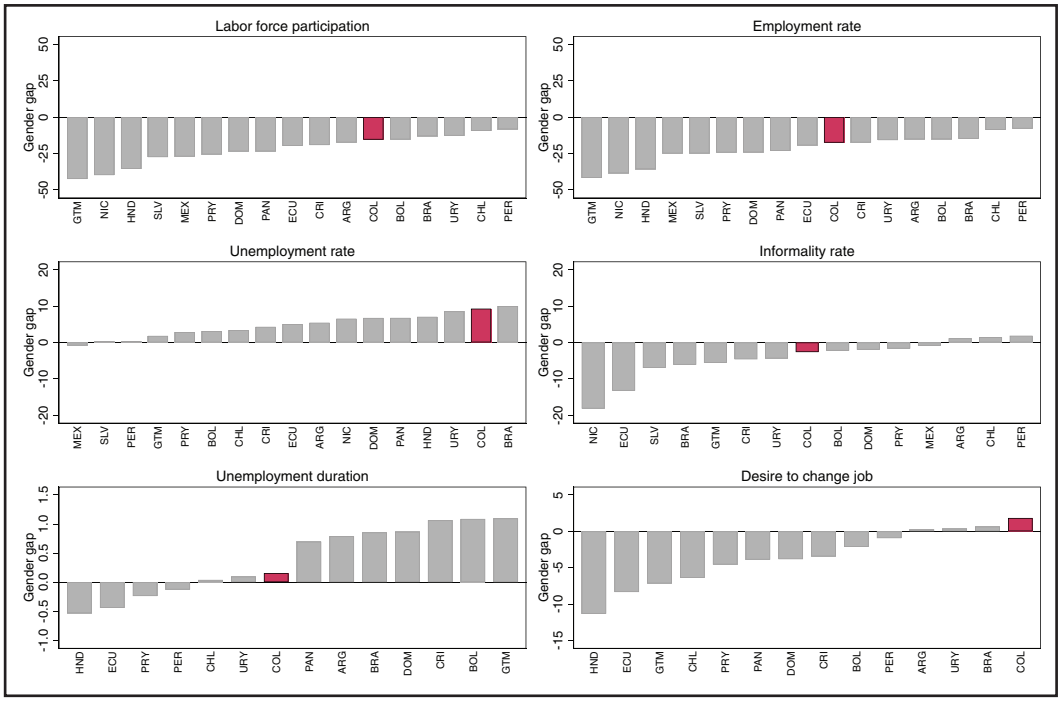
of lowest to highest. In summary, unemployment rates are higher for Colombian youth when compared with their peers in other countries in the region, but labor force participation and informality rates are more favorable than in any other Latin American nations.

The Figure 1 at its end shows the average duration of unemployment (in months) and the percentage of young people who are willing to change employment. Average unemployment duration in the region for youth is just over four months, and Colombia is below the regional average, with an estimate of 3.5 months of unemployment length. Consistent with the evidence in (Manacorda et al., 2017) that youth are unstable in their early careers, we find that one in four young people in Latin America is interested in changing of jobs. Colombian youth are more likely to want to change jobs, with about 40.5%, just below Chile and Costa Rica, reporting a desire to change their current employment.

The data from (SEDLAC, 2018) also allow observing gender differences in these indicators. The evidence shows a high level of inequality between young men and young women. Therefore, this will be an important dimension in our analysis in Section 4. Figure 2 plots gender gaps among youth for the six selected indicators (% women to % men). A positive value indicates a higher rate in the indicator for women, while a negative value implies that the indicator is higher for men.

Young women are in disadvantage in most indicators. In Colombia, the labor force participation gap amounts to 16 percentage points (61% for men and 45% for women). Men have a higher employment rate than women (52% vs. 35%) and a lower unemployment rate (14% vs. 23%). In terms of labor informality, young men have a slightly higher rate (62% vs. 57%).

Figure 2 Gender gaps in labor market indicators for Latin American youth.



Source: Authors' calculations on data from (SEDLAC, 2018).

Notes: Youth are defined as people aged between 15 and 24. ARG=Argentina, BOL=Bolivia, BRA=Brazil, CHL=Chile, COL=Colombia, CRI=Costa Rica, DOM=Dominican Republic, ECU=Ecuador, SLV=El Salvador, GTM=Guatemala, HND=Honduras, MEX=Mexico, NIC=Nicaragua, PAN=Panama, PRY=Paraguay, URY=Uruguay.

How do these results compare to other countries? Colombia is in a partially favorable position regarding to gender gaps in Latin America. Ranked from the lowest to the highest gender gap, it occupies positions 6, 8, 16, and 8 in participation, employment, unemployment, and informality, respectively (among 17 countries with available data). Young women spend about 0.2 months more in unemployment than young men, in addition to higher unemployment rates in general. While young women in most Latin American countries are less willing to change employment, Colombia is among the few countries where women are more likely to report wanting to change jobs (41.6% for women and 39.8% for men). Therefore, we find that although Colombia's situation is better compared to other countries in labor force participation, employment, and informality, it is in a relatively unfavorable situation in gender differences with regards to unemployment and its duration that negatively affects young women.

This section shows that Latin American youth are in disadvantage in the labor market. Although more recent results are encouraging, there remains room to improve the school-to-work transition for this age group. Previous literature provides some ideas to achieve this goal: reduce employment instability, policies that reduce unemployment and informality, better match the skills taught in schools and those required by employers, and reducing persistent inequalities. In comparison to other countries in the region, Colombia performs better than the average in all indicators, but not on all labor market indicators. In the Section Results, we explore the labor market situation of Colombian youth between 2008 and 2017 to study recent patterns and trends in their labor indicators, analyze their current situation, and discuss the role of public policies to improve the observed situation. Before turning to those empirical results, we describe our main source of data for those estimates.

3 **Data**

The main source of data used in this paper are Colombian household surveys, the *Gran Encuesta Integrada de Hogares* (GEIH, for their acronym in Spanish), elaborated by the National Administrative Department of Statistics (DANE, for its acronym in Spanish). This survey captures the evolution of the labor market by gathering information on different indicators. It is carried out monthly with a sample of approximately 20,650 households, and is the representative for 24 largest cities (with their respective metropolitan areas) and rural areas. Its repeated cross-sectional structure allows exploring the patterns and trends of the Colombian labor market over time.

Our study period covers the period 2008 to 2017. We use information from the third quarter of each year. Given that the survey is collected monthly, this means each year is represented by July, August, and September. One reason to use the third quarter is that aggregating at this level makes the survey representative of both urban and rural areas (Garca et al., 2014). Another reason is to reduce potential biases due to the economic cycle. For example, the first and the last quarter of the year tend to show a favorable and an unfavorable economic outlook, respectively. Using these quarters could result in statistics that are too optimistic or pessimistic to be compared to normal conditions, whereas this does not happen in the third quarter.[6]

We calculate and analyze several labor market indicators: time use, labor force participation, employment rates, unemployment rates, fraction of salaried workers, informality rates, and real monthly earnings. These indicators are constructed using the self-reported answers from the surveys.[7] Time use is divided into four categories: working, seeking work, studying, and other activities (household duties and inactivity). The labor force participation rate measures the economically active population, the employment rate assesses the level of employment, and the unemployment rate estimates the proportion of individuals among the economically active population who are actively seeking work. A person is deemed to be in a salaried employment if s/he is employed as a worker, domestic worker, day laborer or *peón* in a private or state-owned enterprise. Informal employment is defined as a job in which the person is not contributing to pension and health care., The monthly salary for the person's main occupation is considered to measure earnings and income from any secondary activities is left out. We deflate nominal salaries to 2008 prices to document real changes in monthly earnings.[8] All statistics are calculated using survey-provided population weights.

These household survey data are suitable for our analysis because they allow investigating the school-to-work transition in Colombia and some of its most important aspects at the aggregate-level. However, the data have limitations. While GEIH surveys provide detailed information at the individual level on youth labor market outcomes, they cannot be disaggregated at the local level. For instance, we cannot study labor markets at the municipality-level to capture the regional disparities in labor markets in a better way across Colombia (Galvis and Meisel, 2013). Additionally, the information is drawn from self-reported answers which may subject to measurement error. Unfortunately, administrative records that cover both formal

6 Figure A1 in the Appendix shows this cyclical behavior in labor market indicators using data from LABLAC (2018), which in the case of Colombia uses the same GEIH data we employ in this paper.

7 For a detailed discussion on the advantages and disadvantages of using self-reported data about income and the labor market, see Deaton (1997), Hurst et al. (2014), and Ekici and Besim (2016); and the references therein.

8 We used the consumer price index from December 2008, which is published by the Colombian Central Bank. The values of this index can be found at http://www.banrep.gov.co/es/indice-precios-consumidor-ipc.

and informal workers are unavailable. Furthermore, the GEIH does not capture migration histories completely, that is about whether individuals migrated in the last five years. Finally, the data are repeated cross-sections, which provide dynamics on groups but do not allow tracking the same individuals over time. We expect that future research can overcome some of these empirical difficulties to complement our findings.

To provide a comprehensive diagnosis of the labor market situation of young people in Colombia, we carry out two exercises. First, we compare labor market indicators between youth and adults to determine relative changes among both groups. In the sample, we define youth as individuals who are in the age between 14 and 28 (following the legal definition of youth in Colombia)[9], and consider as adults who are between 29 and 65 years. Second, we study inequalities within youth to determine whether some of them are more vulnerable than others in the labor market. We study differences by gender (men and women), area of residence (urban and rural), geographic regions, educational level (skilled and unskilled), SES (medium/high and low), migration (migrants and non-migrants), and level of experience (with and without experience). These dimensions allow approximating whether some youth are in a better or worse labor market situation than others based on the outcomes and characteristics observed in the survey, which constitutes key knowledge for policymakers to better target youth-focused interventions.

4 The youth labor market in Colombia from 2008 to 2017

This section describes the main patterns and trends in labor market indicators for Colombian youth for 2008–2017. We begin by presenting a comparative analysis between youth and adults, which allows us to investigate how the relative situation of youth in the labor market has changed over the last decade. Subsequently, we study inequalities among youth to determine whether some young people are more vulnerable than others in the Colombian labor market.

4.1 Comparative analysis between youth and adults[10]

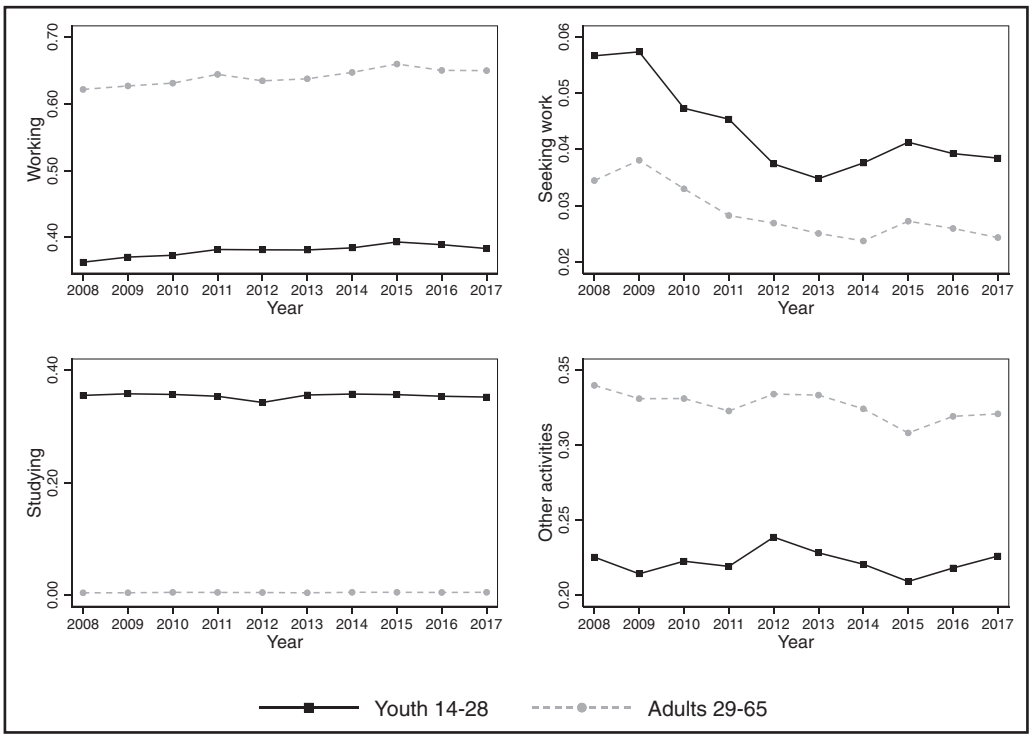
Before analyzing labor market indicators, we analyze time use statistics. Figure 3 presents time use trends for youth and adults from 2008 to 2017. The percentage of people dedicated only to working has increased for both groups. The average proportion of people working from 2008 to 2017 is always higher for adults than youth (64% vs. 38%). The average amount of people looking for work across the entire period has fallen over time for both youth and adults. However, the percentage of people in this situation is higher for youth than adults (4.4% vs. 2.9%).

According to our calculations, over one third of youth are exclusively studying, while only 1% of adults are in school. The estimates show that the labor force participation of young people is below the level that is observed for adults due partially to more time spent studying and higher inactivity. The four indicators show minor changes over the period studied. There is an increase in the proportion of youth who work (2 percentage points) and a decrease in the proportion of youth seeking employment. The share of youth dedicated to studying and other activities presents changes below 1 percentage point over the period. These results differ

9 For robustness, we also calculate statistics for youth above the age of majority, aged 18-28 in the Section "Appendix".

10 The statistics in this sub-section are presented in full in Table A1 in Appendix.

Figure 3 Time use trends for youth and adults.



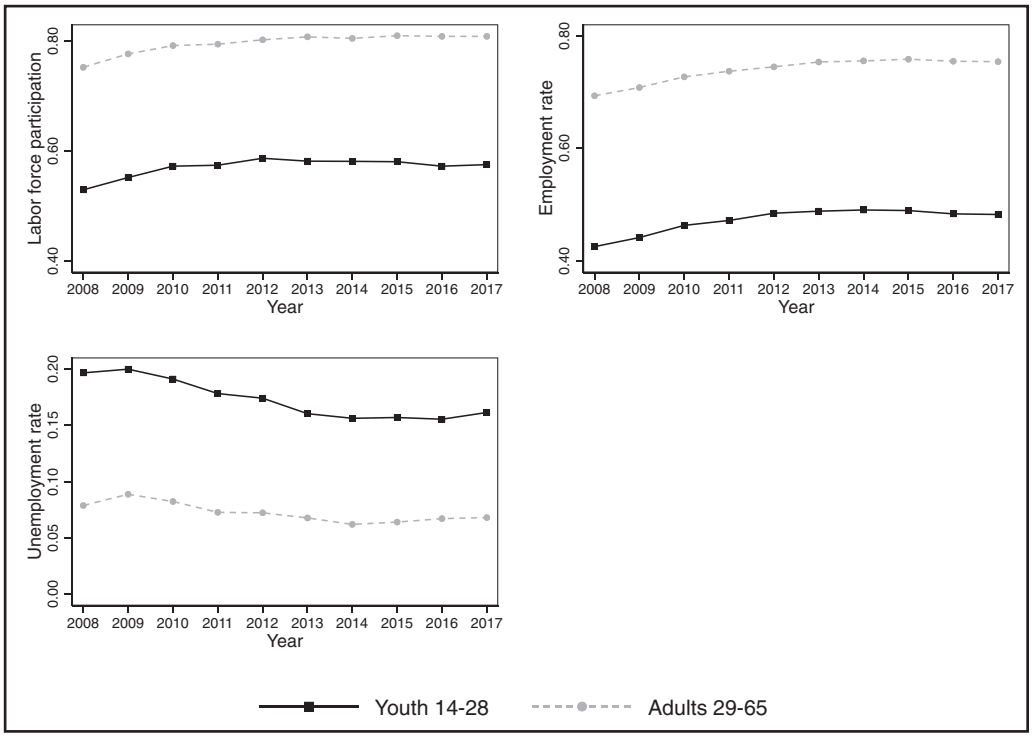
Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

slightly from previous regional and local findings that document a sustained increase in the share of young NEETs across Latin America (De Hoyos and Popova, 2016; Tornarolli, 2017; Mora-Rodrguez et al., 2017). However, given that we are unable to measure the share of NEETs directly from the survey data, we cannot conclusively rule out an increase or decrease in their number with the available information.

Figure 4 plots trends in labor force participation, employment, and unemployment. The participation rate throughout the period is higher for adults and has increased for both population groups by around 5 percentage points. To determine whether this increase is due to higher employment or unemployment, we have to observe trends in employment and unemployment rates. The estimated levels confirm that adults have a higher employment rate and a lower unemployment rate than youth. However, the relative situation for youth has improved in recent years compared to adults. The growth in employment rates was similar for both groups: 5.7 percentage points for youth and 6 percentage points for adults. In the case of adults, this improvement amounts to approximately 8%, and for youth, to about 10%. The corresponding reduction in the unemployment rate was 3.5 percentage points for youth and 1 percentage point for adults. Although this downward trend in youth unemployment is encouraging, we note that the level of unemployment remains high: 16.1%. This number is consistent with the estimates presented in Section 2 that place Colombia among the Latin American countries with the highest youth unemployment rate.

We now explore the quality of the jobs held by young people. To do this, we use different approaches (Farné et al., 2002). First, we estimate the share of youth who have a salaried job, as a proxy for job stability. Second, we quantify the informality rate, another commonly used measure for studying the quality of employment. Finally, we investigate what type of economic

Figure 4 Trends in labor market indicators for youth and adults.



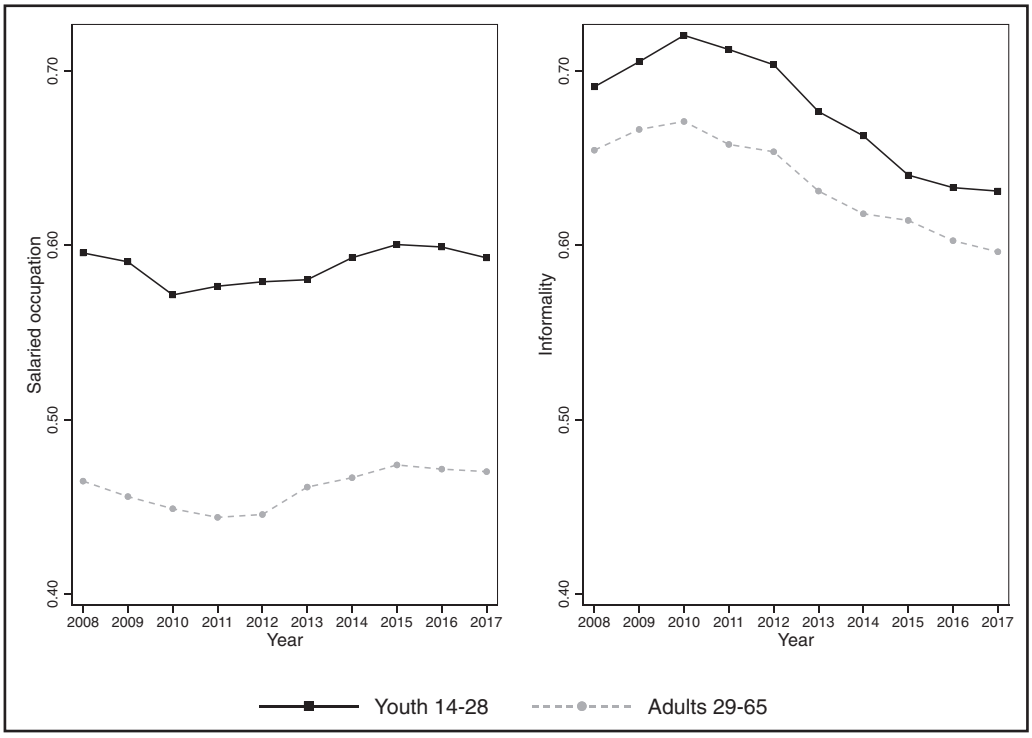
Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

sectors are employing young workers and estimate the share of jobs in science, technology, engineering, and mathematics (STEM), which are often well-paid occupations with better employment conditions.

Figure 5 shows the evolution in the fraction of salaried and informal jobs for youth and adults. More young people tend to have salaried jobs compared to adults, 59% vs. 46% on average. This difference remains constant throughout the period, in which we also observe an increase in the proportion of salaried jobs. Although having a salaried job nearly ensures or equal to job stability, it does not guarantee this concept, mainly due to the heterogeneity across these jobs. For example, the definition of salaried jobs used by DANE is that a person should be employed in a private or state-owned enterprise as a worker or a domestic worker or a day laborer or a *peón*. This condition, however, does not guarantee a formal contract, more stability, or better work conditions, dimensions which have been historically associated with salaried work (CIPD, 2018). In fact, recent legislation in Colombia has actually made labor contracts more flexible (Posada et al., 2016). These flexible contracts are temporary and it's up to the employee to decide whether to be formal, by giving them the decision to contribute to social security. These contracts have been mainly used by the public sector, but their uptake by private employers has also been significant (Velásquez and Dez, 2019). The impact of more flexible contracts may especially affect young workers, and merits further research given the complexities of contracting practices in Colombia. Unfortunately, we cannot capture these nuances in survey data. However, the type of contracts being signed by young workers is important since flexible contracts are often written but only informal may affect employment trajectories.

Further, to continue characterizing the quality of youth employment, we analyze trends in labor informality. Colombia is characterized by having high levels of informality [Garca, 2010; ILO, 2014; SEDLAC, 2018). Labor informality is caused by many factors, such as voluntary exit

Figure 5 Trends in type of occupation and informality for youth and adults.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

toward the informal sector (Uribe, 2006), high minimum wages, and non-wage costs of labor (Mondragón-Vélez et al., 2010), the lack of opportunities [Bernal, 2009), and the proliferation of small and low productivity firms (Galvis, 2012). The second panel of Figure 5 presents trends for this indicator for youth and adults over the study period. We reiterate that the definition of formality we employ is based on whether the person contributes to both pension and health care in their current job.[11]

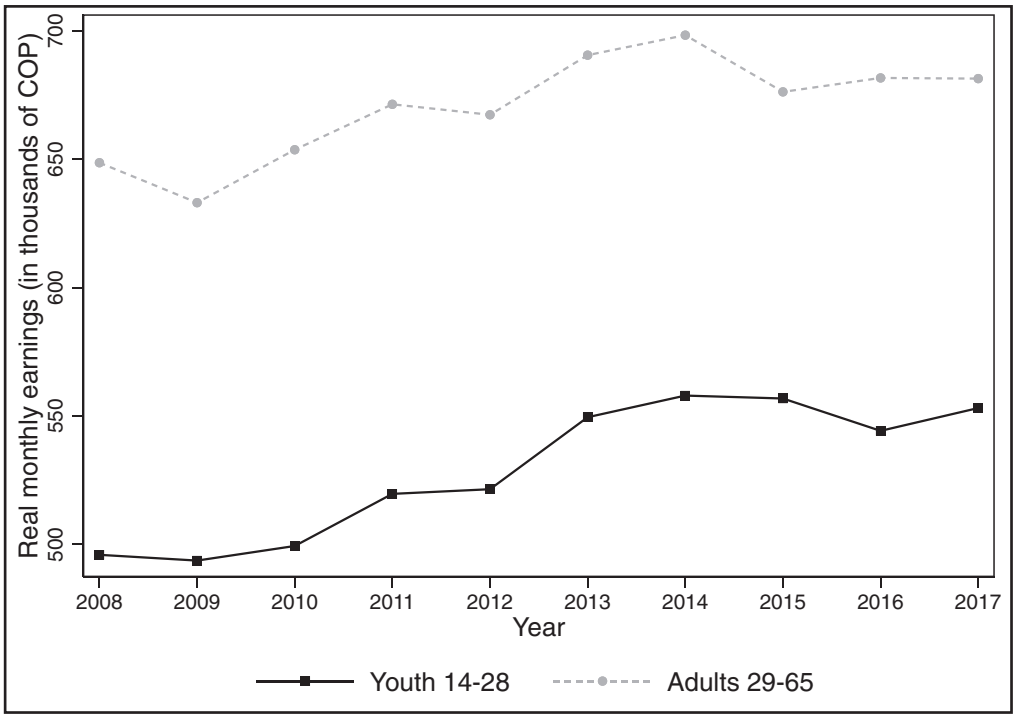
Young people have systematically higher informality rates than adults throughout the period. Labor informality increased between 2008 and 2010, partly due to the international economic crisis and the factors mentioned above. However, this trend has reversed since then. We see a continuous decline in the proportion of people who do not contribute to pension and health. In 2017, 63% of youth and 60% of adults were informal workers. The decline was higher for youth (6 percentage points) than for adults (5.8 percentage points). Despite the slight reduction in labor informality, its high levels suggest much remains to be done in terms of employment quality for youth and adults.

A complementary approach to characterize the quality of employment is to study the sectors in which youth and adults work.[12] The agricultural sector is frequently associated with lower relative productivity than industry and services (Arias-Vazquez et al., 2012). The results in Figure A2 in Appendix show that youth participate in all economic sectors, although in different proportions: 62% are in services; 21%, in industry; and 17%, in the agricultural sector. This distribution is similar for adults. We observe that the participation of youth in the service sector has increased by 3.5 percentage points over the last decade, almost twice the increase

11 See Bernal (2009) and Fernández and Villar (2016) for other empirical definitions of labor informality in Colombia.

12 The sectors were defined by the reported sector in the survey. Table A2 in Appendix details how the categories were assigned according to their CIIU code.

Figure 6 Trends in real monthly earnings for youth and adults.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: Earning values were deflated to December 2008 prices using the consumer price index published by the Colombian Central Bank.

for adults during the same period. This concentration of youth in the service sector may be due to the increase in flexible contracting practices, but few data are available about the types of contracts in the GEIH, and thus further evidence is required to identify the role of service provision contracts on this distribution.

Figure A3 in Appendix shows how participation in STEM occupations has evolved over time.[13] This sector usually pays better wages and provides better employment conditions in the US and Europe (Deming and Noray, 2018). In Latin America, wages in STEM jobs are lower, except in Uruguay, Perú, and Panamá which have been pioneers in the sector (ECLAC, 2016). Colombia has a large number of STEM graduates, but their number has decreased in part due to competition for jobs (ECLAC, 2017). We find an increase in the share of individuals working in STEM. For adults, the share increased from 3.9% in 2008 to 5.7% in 2017, whereas for youth, it increased from 3.7% to 5.7% over the same period. These results indicate that, although the proportion of STEM employment has increased, there are few jobs in this sector for Colombian youth and adults.

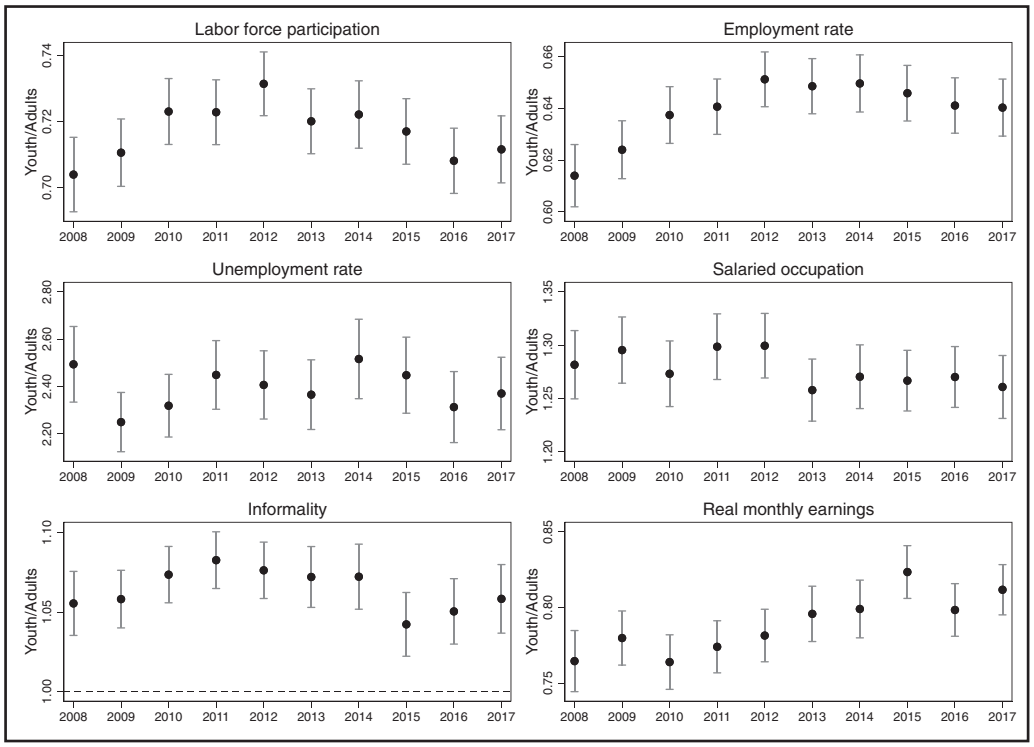
Finally, we present the evolution of monthly earnings. Figure 6 plots trends in real earnings for youth and adults from 2008 to 2017. On average, adults earn 43% more than youth. During the period, real earnings have increased for both groups. This growth was higher for youth, whose earnings increased from 495,919 Colombian pesos in 2008 to an average wage of 553,089 pesos in 2017, which amounts to an increase of 11.5% in real terms. The earning for adults was increased by 5.1% that is from 648,638 to 681,402 pesos. While this trend slightly

13 We use the self-reported occupation in the GEIH survey to classify occupations into STEM and non-STEM. Table A3 in Appendix presents the careers we consider as science, technology, engineering, and mathematics (STEM).

reduced the income gap between youth and adults to 40.6%, young Colombian workers still earn substantially less than adults.

There are three lessons we learn from this comparative analysis of labor market indicators for youth and adults. First, youth remain at a disadvantage compared to adults. This is evident from the gaps observed in labor force participation, employment, unemployment, labor informality, sectoral composition, occupation, and earnings. Part of this gap may be explained by the preference of studying by youth. Youth tend to be in school more than adults, which would imply that those who are not studying are the least advantaged and this drives our findings. Unfortunately, we cannot separate the trajectories between youth in and out of school with repeated cross-sections. Long running panel data are required for that purpose, which would provide valuable insight on different labor histories and is a key area for future research. Second, many of the upturns in these indicators seem to favor youth. Even though adults have better levels across indicators, the observed changes during the last decade suggest youth are slowly catching up. Figure 7 presents ratios between youth and adults to highlight these changes; the figure also shows 95% confidence intervals for these ratios.[14] In terms of several dimensions, youth are improving their conditions but differences across years are rarely statistically different. These findings suggest that although the transition into the labor market remains challenging for Colombian youth, young people are now participating more in the labor market. Third, these positive changes do not imply that recent policies targeted at youth are the source of these gains in the labor market, which we will discuss in more detail in Section 5.

Figure 7 Ratios in labor market indicators between youth and adults.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. When in range, we also show a dashed line for equality at value 1.

14 Values lower than 1 indicate a lower value in the indicator for youth, whereas values higher than 1 indicate a higher value for youth. A value equal to 1 indicates parity in the indicator between youth and adults.

4.2 **Labor market inequalities among youth**

We now study differences in labor market indicators among youth to characterize "vulnerable" groups that have shown less favorable conditions historically in the labor market and to determine whether that situation has changed during the last decade. We present differences in labor market indicators across several characteristics: gender (men and women), area of residence (urban and rural), geographic regions, educational level (skilled and unskilled), SES (medium/high and low)[15], migration (migrants and non-migrants), and level of experience (with and without experience). To simplify the discussion of labor inequalities, we present graphs that plot ratios between the indicators for the group considered "more vulnerable" divided by the indicator for the "less vulnerable" group. We highlight the line representing equality (=1) when in range.[16]

We present labor inequalities by gender in Figure 8. Young women have lower labor market attachment than young men, which is evidenced by a systematically lower labor force participation rate (48% vs. 66%) and a lower employment rate (37% vs. 57%). Young women also have a higher unemployment rate than young men (23% vs. 13%). The differences with respect to employment quality are less pronounced, since approximately the same proportion of young men and women have a salaried job (60% vs. 58%) or a formal job (35% vs. 30%). On average, our estimates show that young women's earnings are 5.2% lower compared to the same income for young men.

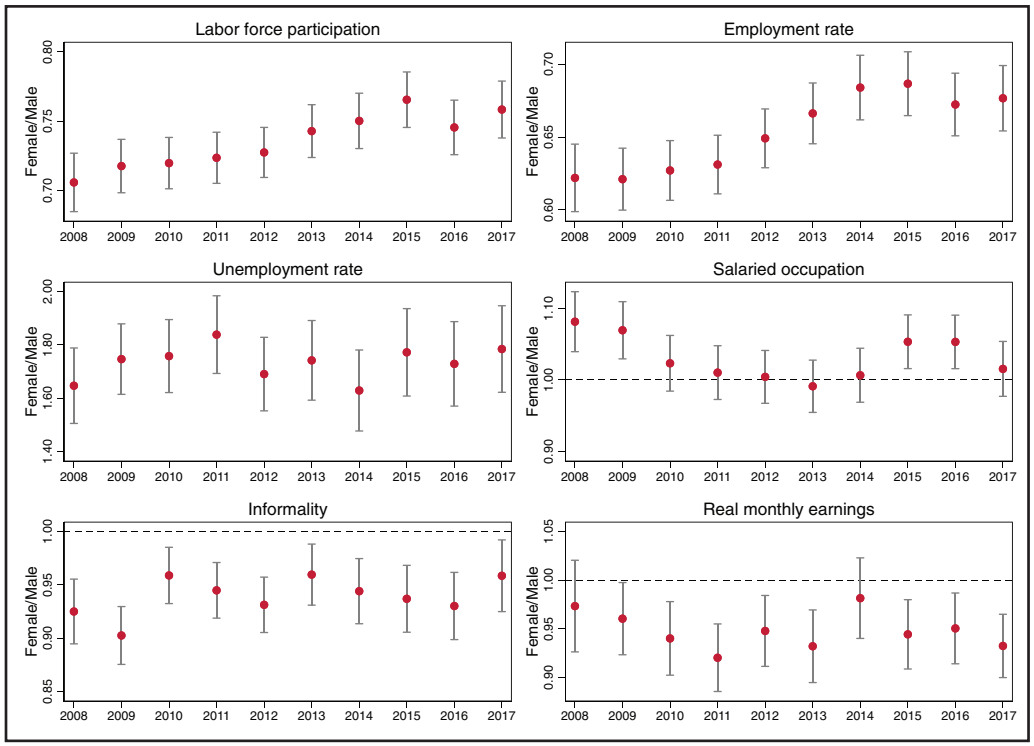
Some of these inequalities have changed over the study period. Labor force participation and the employment rate have increased for women, thereby reducing the gender gap. This can be observed in the first row of Figure 8, which shows that the estimated ratio increases. This evidence suggests that young women are entering the labor market, mainly into employment and not unemployment. In what occupations are young women entering? The trends indicate that there are more salaried and formally employed women than men, but during the period this difference tends to disappear. In other words, although there is greater female labor participation, the jobs obtained by these women seem to be unsalaried and informal. However, it is worth noting that both young men and young women tend to have precarious jobs. The youth gender gap in earnings has remained constant at around 5% over the last decade, with young men earning slightly higher.

Figure 9 shows differences in youth outcomes between urban and rural areas. We find small differences in labor force participation: 58% in urban areas vs. 54% in rural areas. The employment rate is around 47% in both contexts. The unemployment rate is significantly higher in urban areas than rural areas: 18.5% vs. 12.7%. These differences are more pronounced when we observe employment quality and earnings. Compared to urban areas, there is a lower proportion of salaried (39%) and formal (10%) workers in rural areas. Young people in rural areas earn 38% less than their counterparts in cities. Over the last decade, there have been cycles in labor market attachment patterns, with an improvement toward the end of the period. The indicators that approximate the quality of employment show an increasing level of precariousness by region. The proportion of salaried and formal workers has fallen throughout

15 Socioeconomic status is constructed not with household income, but using a dwelling's strata. This is a traditional measure of economic vulnerability used in Colombia to target public programs and policies. Households are eligible for social assistance based on their dwelling characteristics and on the neighborhoods in which they reside.

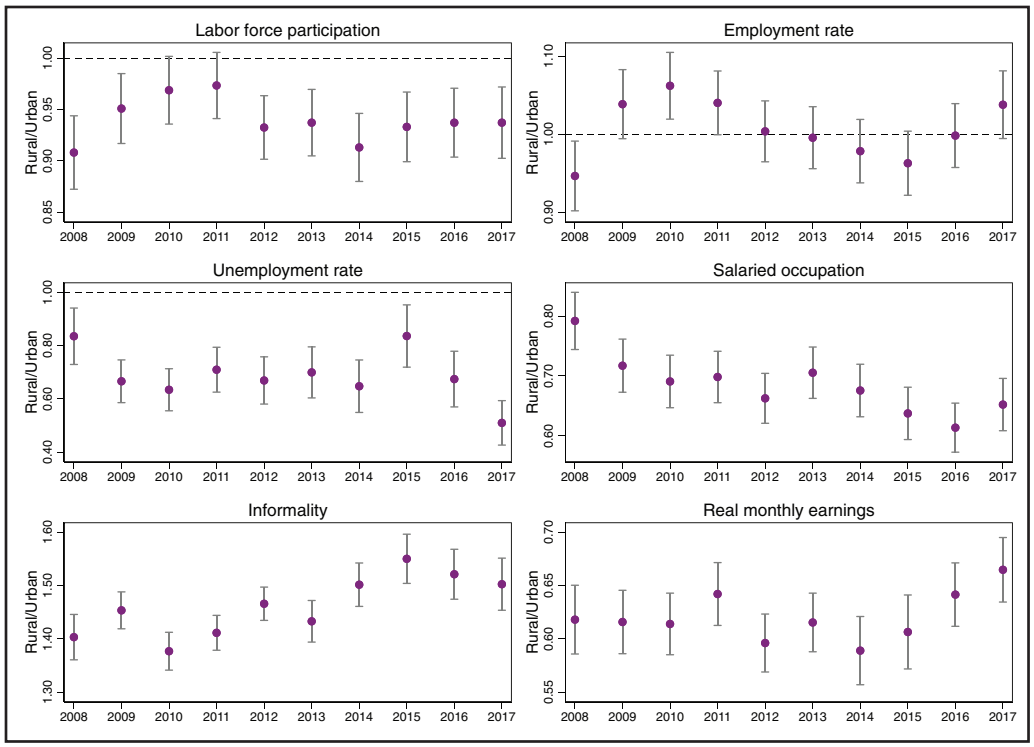
16 The complete statistics for each group and year are presented in the Section "Appendix".

Figure 8 Ratios in youth labor market indicators by gender.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. When in range, we also show a dashed line for equality at value 1. The statistics used to calculate these ratios are shown in Table A4 in Appendix.

Figure 9 Ratios in youth labor market indicators by area of residence.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. When in range, we also show a dashed line for equality at value 1. The statistics used to calculate these ratios are shown in Table A5 in Appendix.

the period in rural areas, which suggests that young people are entering the labor market into unsalaried and informal jobs. Additionally, the income gap between the areas remains significant, although the differences seem to have reduced over time.

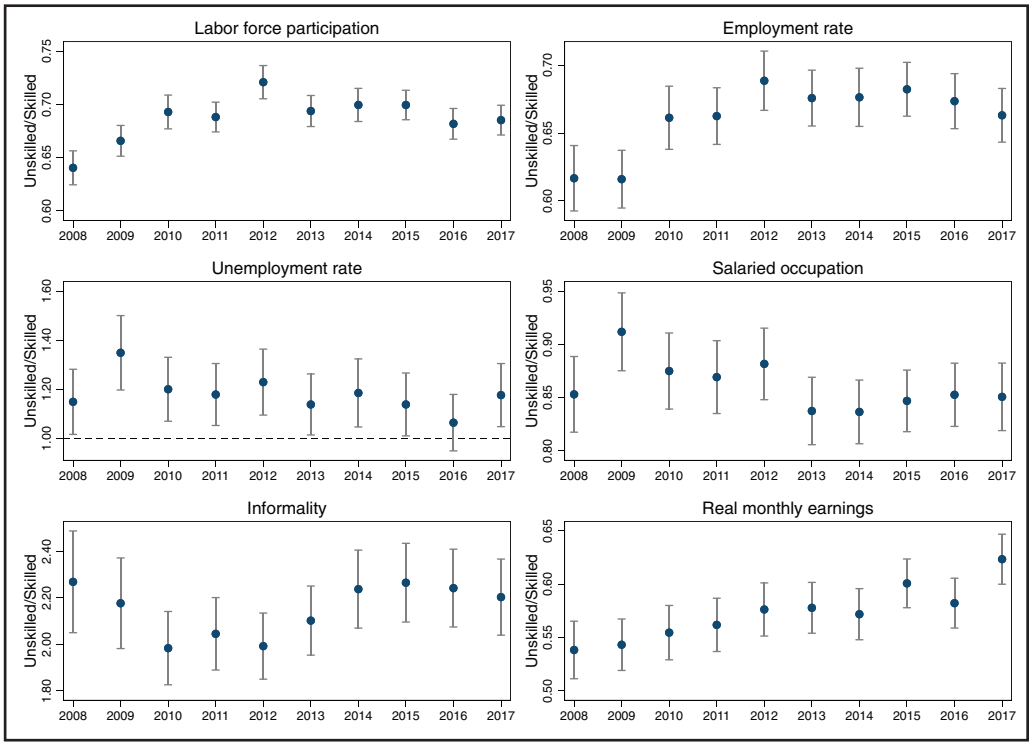
Regional disparities in labor markets are more complex than the urban and rural divide in Colombia (Bonilla-Meja, 2011). Previous evidence indicates that differences in labor demand, specialization across sectors, industrial development, population structure, human capital, migration, and urbanization have created and cemented differences across regions (Garca Cruz, 2008; Ortz et al., 2009; Cárdenas et al., 2015; Daz, 2016). In order to document some of these differences, we calculate labor market indicators in 2017 for five broad regions in Table A6 in Appendix: Bogotá, Eastern, Central, Pacific, and Caribbean. The results reveal regional heterogeneity in labor market outcomes. The capital district of Bogotá systematically has the best results, followed by the Central and Eastern regions, with the Pacific and Caribbean regions being the least well-off. In particular, these last two regions show lower participation rates, high unemployment and informality, and the lowest level of earnings in the country for both youth and adults. Thus, while urban-rural differences in labor market outcomes are important, regional disparities in Colombian labor markets go beyond a binary comparison. We encourage other scholars to further explore these regional differences for young people to better understand these nuances in future research on labor market outcomes since the resulting evidence would provide a local-level perspective.

We now study differences in labor market indicators among youth by educational level. Although some young people in the sample have not completed their studies, we consider that documenting inequalities in this dimension is important in order to have a complete picture of the labor market. Figure 10 shows the ratios between "skilled" (individuals with at least some higher education) and "unskilled" youth (individuals with complete high school or less education).

Skilled youth have greater labor market attachment. Both labor force participation and employment rates are higher for skilled youth (90% vs. 62% and 75% vs. 50%, respectively). Young people with less education have a higher unemployment rate: 19.8% vs. 16.3%. In terms of employment quality, a higher proportion of skilled young people have salaried and formal jobs (73% vs. 63% and 70% vs. 35%, respectively). Young people with at least some higher education earn on average 43% more than those who completed high school at most. However, less skilled young people have increased their labor market attachment, although Figure 10 shows that this rise in participation seems to be driven by the availability of more jobs in unsalaried and informal occupations. We also observe a reduction in the income gap by educational level, which fell from 46% to 37.6%.

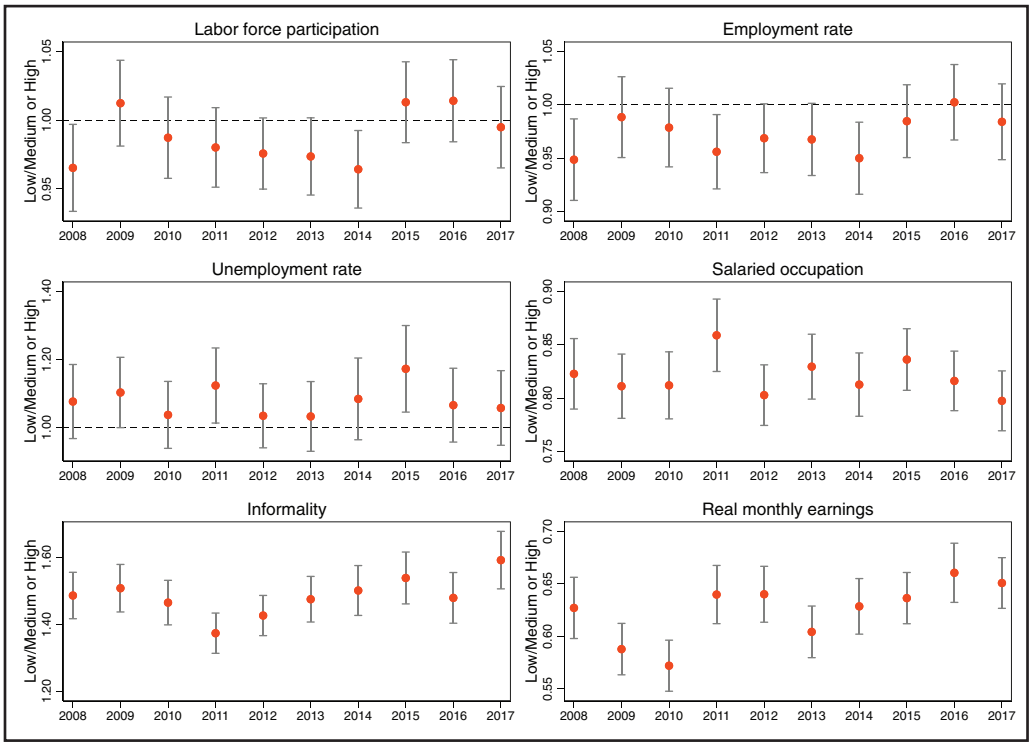
The next dimension in which we explore labor market differences by statuses. We grouped young individuals under two categories: medium or high SES (from strata 3 to 6) and low SES (strata 1 and 2). We find slight differences in labor market attachment in Figure 11, with young people from low strata being disadvantaged in participation, employment, and unemployment. Despite the few inequalities in the extensive margin of the labor market, there are pronounced differences in employment quality between both groups. Youth from lower strata are less likely to have a salaried or formal job (57% and 28%, respectively). The differences in monthly earnings show an important gap since youth with higher SES earn 37.5% more than those from lower SES.

Figure 10 Ratios in youth labor market indicators by education level.



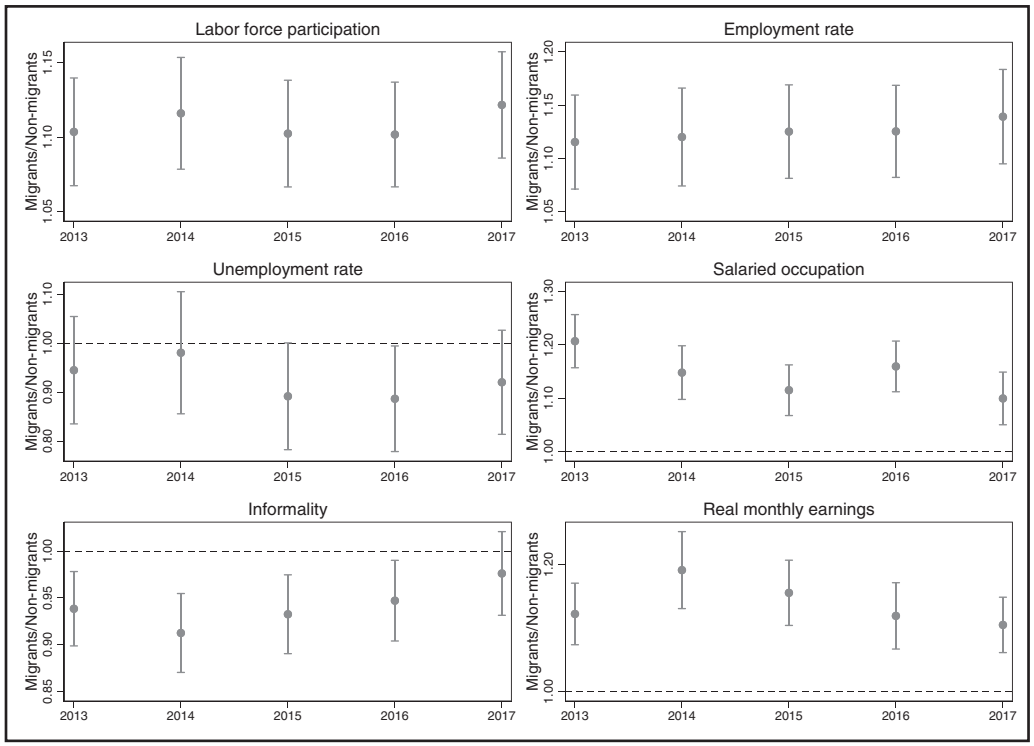
Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. When in range, we also show a dashed line for equality at value 1. The statistics used to calculate these ratios are shown in Table A7 in Appendix.

Figure 11 Ratios in youth labor market indicators by SES.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. When in range, we also show a dashed line for equality at value 1. The statistics used to calculate these ratios are shown in Table A8 in Appendix.

Figure 12 Ratios in youth labor market indicators by migration status.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. When in range, we also show a dashed line for equality at value 1. The statistics used to calculate these ratios are shown in Table A9 in Appendix.

How have differences by SES evolved over time? Youth with lower SES seem to have improved their labor market attachment, but mainly in unsalaried and informal jobs. The earnings gap between groups has remained stable: it changed from 37.3% in 2008 to 35% in 2017. Here the pattern previously observed in other characteristics emerges once again: there are improvements in labor force participation and employment rates due to a growth in low-quality jobs.

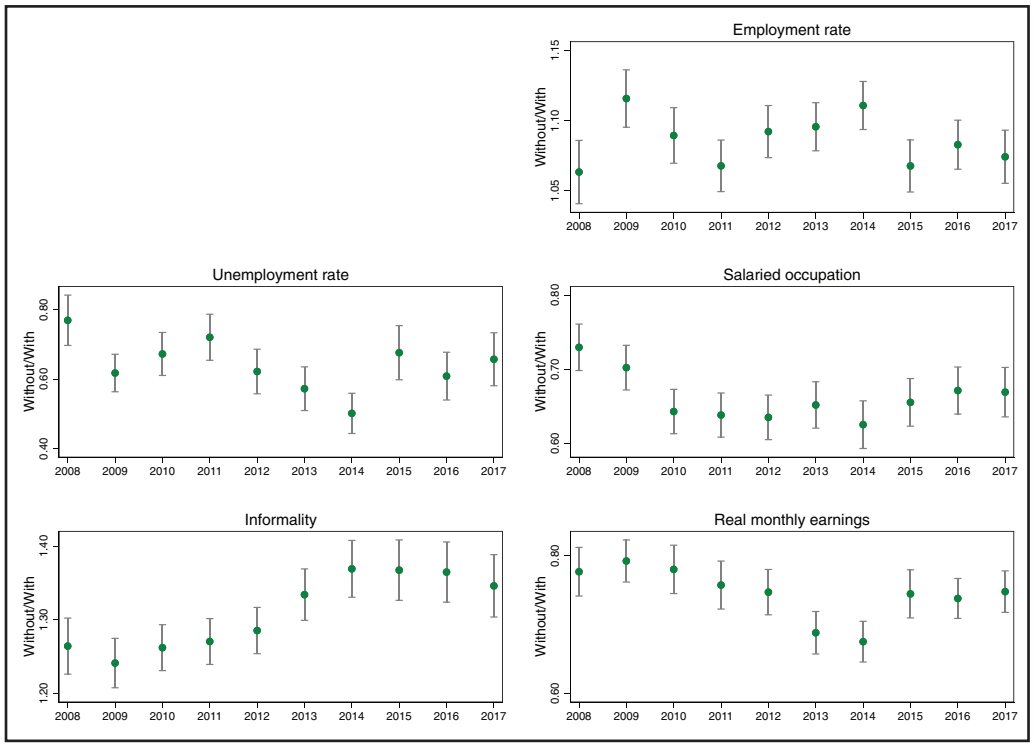
Given the importance of migration in labor markets across the world, we also inquire whether youth who are recent migrants differ from youth who have lived in the same place since their birth. We take advantage of the migration module in the GEIH, which asks respondents where they lived five years prior to the survey period.[17] We define migrants as individuals who report living in a different municipality than their current place of residence and non-migrants as those who have not moved. On average, about 13.5% of youth are classified as migrants under this definition.[18] We plot ratios in labor market outcomes between migrants and non-migrants in Figure 12.

We find that young people who migrate have slightly better outcomes than those who do not move. Labor force participation and employment rates are higher, although unemployment and informality are not significantly different. Migrant youth tend to be

17 The migration module was first collected in 2012, but does not inquire about recent migration. Due to this limited availability, we only have data from 2013 to 2017.

18 Unfortunately, we do not have more specific data on the reasons for migration and whether these individuals moved by themselves or with their families. However, as an initial investigation into the role of migration, we can gain some insight that may be explored in future research.

Figure 13 Ratios in youth labor market indicators by level of experience.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017**.**
Notes: The graph shows the average ratio (circle) and its 95% confidence interval. When in range, we also show a dashed line for equality at value 1. The statistics used to calculate these ratios are shown in Table A10 in Appendix. Given that the GEIH only asks employed and unemployed individuals if they have previous labor market experience, it is impossible to calculate labor force participation by level of experience. In order to obtain that estimate, we require that inactive individuals be asked about their level of experience in the labor market, which is not currently asked.

employed in salaried jobs and earn approximately 14% more than non-migrants. Given that we cannot isolate the reason behind individual nor household migration decisions, we may be able to capture the reasons from the results for the migration of individuals; they move because the benefits of migration outweigh its costs. These results suggest that young people who migrate do so because of better opportunities, but more research on this topic is required to trace out the causal pathway that migration has on youth labor market outcomes.

Experience is an important factor in the labor market (Manacorda et al., 2017). To establish whether this attribute generates labor inequalities among young people, we compared youth with experience to those who have just entered the labor market. Figure 13 shows the estimated ratios between young people without experience and those with experience.[19]

Youth who have just entered the labor market are more likely to be employed than unemployed, but in unsalaried and informal jobs. The first job for inexperienced young people pays 25% less on average. During the last decade, some cyclical changes can be observed in employment and unemployment rates, but there are clear trends with respect to employment

19 Given that the GEIH only asks employed and unemployed individuals if they have previous labor market experience, it is impossible to calculate labor force participation by level of experience. In order to obtain that estimate, we require that inactive individuals be asked about their level of experience in the labor market, which is not currently asked.

quality. Youth who enter the labor market without experience do not seem to be employed in salaried or formal jobs. Additionally, the income gap has not changed substantially between 2008 and 2017.

Given that the legal definition of youth includes individuals below the age of majority in Colombia, we calculate all the preceding statistics only for individuals aged 18–28. The statistics are shown in Tables A11–A17 in Appendix.[20] Restricting the sample to individuals above the age of majority yields qualitatively similar results to those described throughout this section.

Our analysis shows certain patterns for youth in the Colombian labor market. First, we identify that some young people are more vulnerable than others. To provide an up-to-date diagnosis about which groups present worse results, we use monthly data from the 2017 GEIH to calculate differences in youth labor indicators. The results are presented in Table 1. We show the average value of the indicator for each group and the probability that the indicators are equal between groups. In other words, we test the null hypothesis that there is no inequality between groups. The results indicate that youth in rural areas, with less education, from lower SES, non-migrants, without work experience, and younger individuals are the ones who face more unfavorable conditions in the labor market. Although these differences cannot be interpreted in a causal manner, they can be a useful starting point to decide which category or type of young people should be targeted by labor policy.

Second, our findings suggest that youth labor market attachment has increased over time. When we analyze trends in labor market indicators over time by groups, we observe a greater participation rate for women, people in rural areas, lower skilled individuals, and young people from low SES. However, this greater labor attachment seems to be driven by an increase in the number of low-quality jobs: unsalaried and informal. These jobs usually pay less and can have lasting consequences if youth are not able to transition toward more productive jobs, with better conditions in earnings and social protection. This result suggests that the current problem of Colombian youth in the labor market has to do with the form of employment, not whether to participate or not.

Some questions do remain. Further research should study only individual labor trajectories. This could rule out selection issues from human capital decisions, migration choices, and other factors that impact working lives. Additionally, the groups we analyze in this section are binary aggregates, but the results of studying regional differences show that heterogeneity likely to extend beyond binary comparisons. Our goal in this paper is to update and document existing disparities for youth in the labor market, but a great deal remains to be learned, particularly with respect to the underlying causes and heterogeneity that leads to diverging outcomes among youth.

5 Youth labor policy: past, present, and future

The previous section shows that from 2008 to 2017, some youth labor market indicators in Colombia have improved. Youth have higher labor force participation, employment rates, lower unemployment rates, and real earnings. The data also reveal improvements for adults but,

20 Due to space restrictions and redundancy, we omit the graphs for trends and ratios. However, these figures are available from the authors upon request.

Table 1 Differences in youth labor market indicators by characteristics, 2017

	Labor force participation (share)	Employment rate (share)	Unemployment rate	Salaried occupation (share)	Informality (share)	Monthly earnings (Colombian pesos or COP)
A. Gender						
Male	0.658	0.578	0.122	0.582	0.643	554,214
Female	0.505	0.398	0.212	0.616	0.604	528,264
Pr (Male=Female)	0.000	0.000	0.000	0.468	0.411	0.000
Observations	199,389	199,389	108,551	88,787	87,874	75,708
B. Region						
Urban	0.589	0.484	0.178	0.649	0.562	588,332
Rural	0.558	0.505	0.093	0.413	0.860	375,005
Pr (Urban=Rural)	0.001	0.000	0.000	0.000	0.000	0.000
Observations	199,389	199,389	108,551	88,787	87,874	75,708
C. Education level						
Unskilled	0.901	0.754	0.163	0.737	0.285	832,519
Skilled	0.619	0.508	0.180	0.630	0.628	504,991
Pr (Unskilled=Skilled)	0.000	0.000	0.028	0.000	0.000	0.000
Observations	133,827	133,827	84,562	68,232	68,135	59,081
D. Socioeconomic status						
Medium/High	0.582	0.488	0.161	0.726	0.426	759,876
Low	0.582	0.486	0.164	0.573	0.673	487,573
Pr (Medium/High=Low)	0.000	0.000	0.246	0.000	0.000	0.000

(*Continued*)

Table 1 Continued

	Labor force participation (share)	Employment rate (share)	Unemployment rate	Salaried occupation (share)	Informality (share)	Monthly earnings (Colombian pesos or COP)
Observations	194,668	194,668	105,780	86,311	85,491	73,744
E. Migration status						
Non-migrants	0.569	0.478	0.160	0.580	0.632	529,685
Migrants	0.641	0.539	0.160	0.665	0.610	600,796
Pr (Migrant/Native)	0.079	0.069	0.905	0.000	0.939	0.000
Observations	199,252	199,252	108,480	88,735	87,822	75,669
F. Experience						
With experience	-	0.819	0.181	0.663	0.567	582,553
Without experience	-	0.891	0.109	0.440	0.772	437,439
Pr (With=Without)		0.000	0.000	0.000	0.000	0.000
Observations		108,551	108,551	88,787	87,874	75,708
G. Age groups						
14–17	0.172	0.150	0.127	0.332	0.997	229,524
18–-21	0.607	0.471	0.224	0.594	0.749	430,128
22–25	0.786	0.664	0.154	0.637	0.567	572,049
26–28	0.848	0.749	0.116	0.622	0.508	664,308
Pr (All equal)	0.000	0.000	0.000	0.000	0.000	0.000
Observations	199,389	199,389	108,551	88,787	87,874	75,708

Source: Authors' elaboration from GEIH microdata for all months from 2017.
Notes: This table presents averages by youth characteristics. In the third row of each panel, we present the probability that the averages between groups are equal. This value is obtained by means of a regression of the indicator on a dummy variable for each vulnerable group, age fixed effects, department fixed effects (the administrative unit) and month fixed effects, with robust standard errors that are clustered by the month for which the person was surveyed. The null hypothesis is that there are no differences between the groups. Pr=Probability.

comparatively, the gains seem to have been higher for youth than adults. However, differences between the beginning and end of our study period are not always statistically significant. This suggests that there remains room for improving youth labor market outcomes, especially through policy.

In this section, we review youth labor policies implemented by the Colombian government over the period of study.[21] The goal of this analysis is to answer two questions. First, we try to investigate how much recent labor policies have contributed to the results documented in this paper. Then, we critically assess the current state of youth labor policies in order to provide recommendations that guide future efforts to improve the school-to-work transitions for Colombian youth.

Youth employment policies in Colombia are similar to as well as followed recent global trends (Kluve et al., 2019), which can be divided into three strands. First, there are policies whose main objective is to generate employment by providing training to workers. Second, there are measures which seek to stimulate labor demand through exemptions or tax benefits for employers or entrepreneurs. Finally, there are measures aimed at improving job search, mainly through labor market intermediation.

Table 2 summarizes recent policies aimed specifically at Colombian youth. Since several measures indirectly affect young people, we concentrate on those explicitly focused on this age group.[22] Most of these policies have two goals: (i) generate more jobs, and (ii) promote formal employment.

Youth in Action (*JÃvenes en AcciÃ³n*) was created in 2005 to improve the employability of young people and remains in place even today.[23] During its first phase, besides granting beneficiaries for a cash transfer, it also provided training and traineeships to people aged 18–25 belonging to economic strata 1 and 2 in the seven largest Colombian cities. This program was successful at increasing the number of employed young people, the number of hours worked, the formality rate, and wages in the short-term (Attanasio et al., 2011). More recent evidence confirms that the positive impacts of Youth in Action remain a decade later (Attanasio et al., 2017; DPS, 2017).

Since 2010, new initiatives have surfaced that seek to improve youth employability. The First Job Act (*Ley del Primer Empleo*, Law 1429 of 2010) aimed to improve the employment situation of young people in their first job or enterprise. It provided non-pecuniary incentives to firms that hire young people, tax benefits, and simplified bureaucratic procedures to encourage entrepreneurs to formalize their activities. The available evidence indicates that, although the youth employment rate increased slightly, the informality rate for youth did not decrease (Moya, 2013).

The 40,000 First Jobs program (*40,000 Primeros Empleos*), created in 2015, helps inexperienced young people to obtain formal jobs. The government gives employers a grant that covers wages, compulsory social contributions, and travel allowance for six months. In exchange, the employers benefiting from the program are committed to keep 60% of these young people on their payroll for no less than six months (Dema et al., 2015). However, the impact evaluation

21 Farné (2009) reviews labor policies for youth and women in the years preceding our analysis.

22 For a wider discussion on labor policy in Colombia, see López (2010) and Casas et al. (2018).

23 Youth in Action has undergone multiple changes. Initially, it provided training for youth to help them find jobs, but now it concentrates on providing incentives to enroll in and complete higher education. While the program maintains the goal of improving youth employability, it now seeks to reach it through investments in human capital formation.

Table 2 Recent youth labor policies in Colombia

Name	Year	Measures	Ages
Youth in Action (*Jóvenes en Acción*) —First stage	2005	Cash transfers conditional on program participation. Three months of theoretical training and a three month internship	18–25
First job act (*Ley del Primer Empleo*) —Law 1429	2010	Exemption from payroll taxes for employers who hire young workers. Tax benefits and simplification of procedures for enterprises.	18–28
10,000 First Jobs (*40,000 Primeros Empleos*)	2015	Offers a grant to companies that hire young people. The grant covers wages, compulsory social contributions, and a travel allowance for six months. Participating firms must guarantee six additional months to 60% of the beneficiaries they hire.	18–28
Pro-Youth Act (*Ley Projoven*) — Law 2780 of 2016	2016	Promotes entrepreneurship among young people by providing seed money and tax benefits. Attracts talented young people to work in the public sector through paid internships. Exemption from payroll taxes for companies that hire inexperienced young individuals. Removes the requirement of military service for young males to obtain a formal job.	18–28

Source: Authors' elaboration from program documents.
Notes: This table contains labor policies specifically aimed at youth and omits those that affect them indirectly.

of this program is not yet available, but is being carried out by the Colombian consulting firm *EconometrÃa*.[24]

The most recent youth labor policy is the Pro-Youth Act (*Ley Projoven*, Law 1780 of 2016). This policy seeks to promote the creation of jobs and youth entrepreneurship by eliminating the barriers that prevent young people from entering the labor market either as workers or entrepreneurs. This program has four components: (i) Young Entrepreneurs (*JÃvenes Emprendedores*), which provides seed capital and tax benefits to encourage enterprises led by young people; (ii) Talented Young People for the State (*JÃvenes Talentos para el Estado*), which creates paid traineeships in public firms and a career plan in the public sector; (iii) Young

24 See project 100793 at http://portal.econometria.com.co/es/proyectos?estado=20.

People Working in the Private Sector (*JÃvenes Trabajando en el Sector Privado*), which provides exemptions from payroll taxes to companies that hire inexperienced people and creates paid traineeships; and (iv) Youth for Peace (*JÃvenes por la Paz*), which seeks to remove the requirement of completing military service to obtain a formal job. This is the most comprehensive youth policy to date. However, there is still no evaluation of the effects of this policy or any of its individual components. This is an area for future research that can provide crucial evidence on the effectiveness of a wide-ranging labor strategy for youth.

These policies may partially explain some of the results presented in Section 4. For instance, the First Job Act can explain the increase in youth labor attachment. The most pronounced changes in the trends presented in our figures occur from 2011 onward. More recent policies may also explain some of the observed trends, although the lack of evidence on the impact of 40,000 First Jobs and the Pro-Youth Act prevents us from drawing definitive conclusions about this matter. In general, there is a suggestive evidence that some of these measures have contributed to improving the labor market attachment of Colombian youth. Nevertheless, despite greater attachment in the labor market, existing evidence and our own estimates indicate that additional efforts are required to generate more and better jobs for young people, specifically with respect to job quality. Unfortunately, the GEIH does not allow identifying beneficiaries for these programs in order to conduct a more detailed exploration of their effects, which would require careful causal inference.

Given our empirical results and the analysis of recent youth labor policy, we want to highlight three recommendations to guide future efforts to help youth navigate the labor market. First, it is necessary to articulate existing measures so that they constitute an integral policy rather than independent, disjointed efforts. On their own, training programs, tax benefits to stimulate labor demand, and intermediation services show small and modest results (McKenzie, 2017; Kluve et al., 2019). We agree with the recommendations made by (Casas et al., 2018) to the Ministry of Labor in Colombia, especially with the recommendation that the government should establish a regulatory agenda instead of implementing isolated programs with no evaluations. A comprehensive labor strategy, such as the Pro-Youth Act, could improve the employment situation of young people if its components are complementary between each other instead of substitutes.

Second, we find that there is insufficient evidence to know what works and what would be the best way to implement youth labor policies. Given the increased availability of administrative panel data and a growth in the number of youth labor policies, there is an opportunity to generate much needed evidence on youth trajectories and how current policies are affecting their working lives. It is crucial to assess the impact of recent policies such as 40,000 First Jobs and the Pro-Youth Act to determine whether they achieve their goals. Whatever the answer is, it will provide key evidence to help establish the best course of action to improve the labor transition of Colombian youth.

Finally, our estimates show that, in addition to promoting youth labor participation, it is necessary to consider the form this participation takes. Many young people are obtaining employment, but only in unsalaried and informal jobs. We believe it is necessary to prioritize the design, implementation, and evaluation of policies, besides incentivizing formality, facilitate the transition from the informal to the formal sector. Policies that provide tax benefits or exemptions for hiring formal employees show an increase in the formality rate, but this effect

tends to be modest and short-lived.[25] Moreover, recent evidence indicates that subsidizing firms is less effective than providing vocational training in the long-term (Alfonsi et al., 2020). The main challenge lies in proposing ways of creating and moving jobs from the informal to the formal sector taking into account the existing barriers and rigidities (Bosch and Esteban-Pretel, 2012), the difference between extensive and intensive margin informality (Ulyssea, 2018), and the long-term consequences informality has on labor, economic, and social mobility (Cruces et al., 2012). Although this recommendation applies more generally, youth are one of the most vulnerable populations due to the precarious jobs they get when entering the labor market and youth are left scarred across their lives that obtained from taking precarious jobs.

6 Conclusion

This paper analyzes the labor market situation of Colombian youth over the past decade. We calculate labor market indicators for people aged between 14 and 28 for the period 2008–2017 using microdata from the GEIH, the main official Colombian household survey. We document the main patterns and trends in labor market indicators for this age group, including labor force participation, employment, unemployment, informality, and earnings. We also compare results for young people with the same type results obtained for adults (aged between 29 and 65) and explore differences among youth with respect to gender, area of residence, geographic regions, educational level, SES, migration, and level of experience. Our goal is to provide up-to-date evidence on the labor market situation of youth with the aim of discussing the past, present, and future of labor policies that may help facilitate the transition of young people into the labor market.

Our results indicate that young people still face disadvantages in the labor market compared to adults. The estimates also suggest that youth are catching up. However, the slow speed at which this process is taking place casts doubts on the effectiveness of recent youth labor market policies to reduce the vulnerability of youth in the Colombian labor market. In several dimensions, including labor force participation, unemployment, and informality, the situation of youth has improved recently. These findings suggest that although the transition into the labor market remains challenging for Colombian youth, young people are now participating more in the labor market.

We identify some young people who are more vulnerable than others within the labor market. Women, youth living in the rural areas, less skilled individuals, people from low socioeconomic backgrounds, and individuals without work experience find themselves in more unfavorable conditions. We find that the increase in youth labor market attachment is partly due to greater participation of vulnerable groups. However, this greater attachment is suggestively driven by an increase in low-quality jobs: unsalaried and informal. This result suggests that the current problem of youth is not whether they participate or not in the labor market

25 Two reforms wanted to create formal jobs for the general population, including youth indirectly. The Labor Reform (Law 789 of 2002) provided an exemption of payroll taxes to companies that increased the percentage of youth on their payroll (aged 16–25 years). The available evaluations show that this reform had a positive impact on job creation and the formality rate, although its effects were smaller than expected (Gaviria, 2005; Amarante et al., 2005; Nunez, 2005; Guataqu-Roa; Garca Cruz, 2009). The Tax Reform (Law 1607 of 2012) reduced the non-pecuniary costs of hiring formal workers by 13.5%. Some studies find that this measure reduced informality in the short term at the aggregate level (Kugler et al., 2017; Bernal et al., 2017; Morales and Medina, 2017; Fernández and Villar, 2017).

but the form in which they participate. However, the scope of our study is limited because we cannot identify the causal effect of belonging to a vulnerable group on youth outcomes, but we expect our findings may motivate researchers to disentangle the mechanisms that explain these outcomes in future studies focusing on youth.

We document an increase in the number of labor policies focused on youth. These measures partly explain the greater labor attachment observed. However, we conclude that more evidence on their effectiveness and further policy efforts are required to generate more and better jobs for young people. We provide three recommendations to guide youth labor policy going forward. First, it is necessary to articulate existing measures so that they constitute an integral policy instead of disjointed efforts. Second, recent policies such as 40,000 First Jobs and the Pro-Youth Act should be evaluated to gather evidence on their effectiveness. The resulting evidence from these evaluations is paramount to determine what works for youth in the labor market and why. Finally, it is crucial to prioritize the design, implementation, and evaluation of policies that, in addition to incentivizing formality, facilitate transitions from the informal to the formal sector.

The discussion of labor markets is a broad topic of general interest. We focus on youth because they are one of the population groups that face greater disadvantages in this setting, but there are many possible directions for future research, some are which we mention throughout the paper. The heterogeneity of workers in the labor market implies that different people have different trajectories. A better knowledge of the factors that determine successful and unsuccessful labor histories is important to understand and improve the functioning of the labor market for all workers. For instance, a longitudinal study can help understand the dynamics behind these aggregate results and generate additional policy insights for young people in the school-to-work transition. Such evidence will allow researchers and policymakers to contribute toward reducing the risk of scarring experiences for some people in the labor market, leading to a greater level of individual welfare.

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Appendix A

Table A1 Trends in labor market indicators for youth and adults

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Youth										
Working	0.363	0.371	0.373	0.382	0.382	0.381	0.384	0.393	0.389	0.384
Seeking work	0.057	0.057	0.047	0.045	0.037	0.035	0.038	0.041	0.039	0.038
Studying	0.355	0.358	0.357	0.353	0.342	0.356	0.357	0.356	0.353	0.352
Other	0.225	0.214	0.223	0.219	0.239	0.228	0.221	0.209	0.218	0.226
Adults										
Working	0.621	0.626	0.631	0.644	0.634	0.637	0.647	0.659	0.650	0.649
Seeking work	0.034	0.038	0.033	0.028	0.027	0.025	0.024	0.027	0.026	0.024
Studying	0.004	0.005	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.006
Other	0.340	0.331	0.331	0.323	0.334	0.333	0.324	0.308	0.319	0.321
B. Labor market indicators										
Youth										
Labor force participation	0.530	0.552	0.573	0.574	0.587	0.582	0.582	0.581	0.573	0.576
Employment rate	0.426	0.442	0.463	0.472	0.485	0.489	0.491	0.490	0.484	0.483
Unemployment rate	0.196	0.200	0.191	0.178	0.174	0.160	0.156	0.157	0.155	0.161
Adults										
Labor force participation	0.753	0.777	0.792	0.795	0.803	0.808	0.805	0.810	0.809	0.809

(*Continued*)

Table A1 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Employment rate	0.693	0.708	0.727	0.737	0.745	0.753	0.755	0.758	0.755	0.754
Unemployment rate	0.079	0.089	0.082	0.073	0.072	0.068	0.062	0.064	0.067	0.068
C. Employment quality										
Youth										
Wage earners	0.596	0.590	0.571	0.576	0.579	0.580	0.593	0.600	0.599	0.593
Informality	0.691	0.705	0.720	0.712	0.703	0.677	0.663	0.640	0.633	0.631
Sector: Agriculture	0.181	0.204	0.193	0.181	0.170	0.162	0.163	0.151	0.164	0.168
Sector: Manufacturing	0.219	0.205	0.211	0.227	0.215	0.210	0.204	0.206	0.202	0.197
Sector: Services	0.600	0.590	0.596	0.592	0.615	0.629	0.633	0.643	0.634	0.635
Occupation: STEM	0.037	0.029	0.041	0.040	0.046	0.050	0.054	0.061	0.062	0.057
Adults										
Wage earners	0.465	0.456	0.449	0.444	0.446	0.461	0.467	0.474	0.472	0.470
Informality	0.654	0.666	0.671	0.658	0.654	0.631	0.618	0.614	0.603	0.596
Sector: Agriculture	0.173	0.176	0.178	0.170	0.168	0.163	0.161	0.158	0.159	0.165
Sector: Manufacturing	0.202	0.208	0.213	0.214	0.208	0.201	0.201	0.197	0.197	0.195
Sector: Services	0.625	0.616	0.609	0.616	0.624	0.636	0.639	0.644	0.644	0.641
Occupation: STEM	0.039	0.037	0.042	0.047	0.048	0.055	0.054	0.057	0.054	0.057
D. Real monthly earnings										
Youth	495,919	493,676	499,359	519,657	521,473	549,504	557,946	556,813	544,201	553,089
Adults	648,638	633,078	653,693	671,388	667,310	690,540	698,319	676,237	681,665	681,402

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

Table A2 Classification of economic sectors

	Section	Description	CIIU Code
Primary sector	A	Agriculture, livestock, forestry	01, 02
	B	Fishery	5
Secondary sector (Industry and manufacturing)	C	Mining and quarrying	10 a 14
	D	Manufacturing industries	15 a 37
	E	Electricity, gas, and water supply	40 y 41
	F	Construction	45
Tertiary sector (Services)	G	Wholesale and retail trade, repair of motor vehicles, motorcycles, personal belongings, and household goods	50 a 52
	H	Hotels and restaurants	55
	I	Transport, storage, and communications	60 a 64
	J	Financial intermediation	65 a 67
	K	Real estate, business, and rental activities	70 a 74
	L	Public administration and defense, compulsory social security	75
	M	Education	80
	N	Social services and health	85
	O	Other activities related to community, social, and personal services	90 a 93

Source: Authors' elaboration from CIIU industry codes.

Table A3 STEM occupations

Code	Occupation (CIUO-68)
1	Specialists in physical and chemical sciences and related technicians
and 3	Architects, engineers, and related technicians
	Pilots, deck officers, machinists' mates (aviation and navy)
	Biologists, agronomists, and related technicians
and 7	Physicians, odontologists, veterinarians, and related workers
	Statisticians, mathematicians, system analysts, and related technicians
	Economists
	Accountants
	Jurists

Source: Authors' elaboration from CIUO-68 industry codes.

Table A4 Trends in youth labor market indicators by gender

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Male										
Working	0.472	0.484	0.488	0.500	0.495	0.495	0.492	0.497	0.497	0.493
Seeking work	0.068	0.070	0.061	0.059	0.052	0.045	0.049	0.049	0.049	0.049
Studying	0.367	0.368	0.363	0.358	0.350	0.359	0.364	0.363	0.361	0.356
Other	0.092	0.078	0.088	0.084	0.103	0.101	0.095	0.091	0.093	0.102
Female										
Working	0.254	0.256	0.258	0.261	0.268	0.267	0.276	0.288	0.280	0.272
Seeking work	0.045	0.044	0.034	0.032	0.023	0.024	0.026	0.034	0.029	0.028
Studying	0.342	0.347	0.350	0.349	0.335	0.352	0.351	0.349	0.346	0.348
Other	0.359	0.352	0.358	0.358	0.375	0.357	0.347	0.329	0.344	0.352
B. Labor market indicators										
Male										
Labor force participation	0.621	0.642	0.666	0.665	0.679	0.667	0.664	0.658	0.656	0.654
Employment rate	0.524	0.544	0.569	0.577	0.588	0.586	0.582	0.580	0.578	0.575
Unemployment rate	0.155	0.153	0.145	0.132	0.135	0.122	0.123	0.118	0.119	0.121
Female										
Labor force participation	0.438	0.461	0.479	0.481	0.494	0.495	0.498	0.503	0.489	0.496
Employment rate	0.326	0.338	0.357	0.364	0.382	0.390	0.398	0.398	0.389	0.389
Unemployment rate	0.255	0.267	0.255	0.243	0.228	0.213	0.201	0.209	0.205	0.216
C. Employment quality										

(*Continued*)

Table A4 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Male										
Salaried occupation	0.578	0.575	0.566	0.574	0.578	0.582	0.591	0.588	0.587	0.589
Informality	0.711	0.732	0.732	0.727	0.723	0.688	0.678	0.657	0.651	0.642
Sector: Agriculture	0.249	0.283	0.262	0.245	0.229	0.220	0.218	0.202	0.223	0.222
Sector: Manufacturing	0.245	0.225	0.242	0.260	0.251	0.248	0.239	0.254	0.245	0.239
Sector: Services	0.506	0.492	0.496	0.495	0.520	0.533	0.543	0.544	0.532	0.539
Occupation: STEM	0.035	0.028	0.044	0.043	0.051	0.052	0.054	0.066	0.069	0.062
Female										
Salaried occupation	0.625	0.615	0.580	0.580	0.580	0.577	0.595	0.619	0.618	0.598
Informality	0.658	0.661	0.702	0.687	0.673	0.660	0.640	0.616	0.606	0.615
Sector: Agriculture	0.060	0.063	0.071	0.068	0.071	0.067	0.075	0.069	0.071	0.081
Sector: Manufacturing	0.173	0.170	0.158	0.170	0.156	0.148	0.150	0.131	0.133	0.131
Sector: Services	0.767	0.768	0.771	0.762	0.774	0.785	0.775	0.799	0.795	0.788
Occupation: STEM	0.040	0.030	0.035	0.036	0.040	0.047	0.055	0.053	0.053	0.050
D. Real monthly earnings										
Male	500,932	501,119	510,920	535,673	532,080	564,317	562,065	569,403	555,072	568,149
Female	487,625	481,327	480,364	493,004	504,352	526,027	551,717	537,741	527,592	529,785

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

Table A5 Trends in youth labor market indicators by area of residence

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Urban										
Working	0.367	0.369	0.370	0.382	0.388	0.389	0.396	0.402	0.394	0.390
Seeking work	0.060	0.061	0.052	0.050	0.040	0.038	0.040	0.044	0.042	0.044
Studying	0.374	0.378	0.381	0.377	0.361	0.372	0.372	0.372	0.367	0.365
Other	0.199	0.191	0.198	0.191	0.211	0.201	0.192	0.182	0.197	0.201
Rural										
Working	0.351	0.376	0.386	0.382	0.361	0.356	0.343	0.361	0.371	0.358
Seeking work	0.045	0.045	0.033	0.029	0.028	0.024	0.028	0.033	0.029	0.020
Studying	0.292	0.289	0.275	0.277	0.277	0.298	0.305	0.299	0.304	0.304
Other	0.313	0.290	0.306	0.313	0.334	0.322	0.323	0.307	0.296	0.317
B. Labor market indicators										
Urban										
Labor force participation	0.541	0.559	0.577	0.578	0.596	0.590	0.593	0.589	0.581	0.584
Employment rate	0.431	0.438	0.457	0.468	0.485	0.489	0.493	0.494	0.484	0.479
Unemployment rate	0.204	0.216	0.208	0.191	0.187	0.171	0.168	0.162	0.166	0.179
Rural										
Labor force participation	0.492	0.531	0.559	0.563	0.556	0.553	0.541	0.550	0.544	0.547
Employment rate	0.408	0.455	0.485	0.487	0.486	0.487	0.482	0.475	0.483	0.497
Unemployment rate	0.170	0.144	0.132	0.135	0.125	0.120	0.109	0.136	0.112	0.092
C. Employment quality										
Urban										

(*Continued*)

Table A5 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Salaried occupation	0.625	0.633	0.618	0.621	0.627	0.621	0.638	0.650	0.654	0.643
Informality	0.633	0.636	0.660	0.648	0.636	0.618	0.599	0.574	0.570	0.568
Sector: Agriculture	0.044	0.050	0.043	0.034	0.035	0.029	0.030	0.032	0.037	0.039
Sector: Manufacturing	0.248	0.229	0.236	0.248	0.237	0.230	0.223	0.226	0.220	0.217
Sector: Services	0.708	0.721	0.721	0.717	0.728	0.741	0.747	0.742	0.743	0.743
Occupation: STEM	0.047	0.038	0.052	0.051	0.058	0.063	0.067	0.074	0.077	0.071
Rural										
Salaried occupation	0.495	0.454	0.427	0.434	0.415	0.438	0.431	0.414	0.401	0.419
Informality	0.889	0.924	0.909	0.915	0.933	0.885	0.899	0.890	0.867	0.854
Sector: Agriculture	0.647	0.682	0.651	0.639	0.624	0.617	0.636	0.589	0.624	0.610
Sector: Manufacturing	0.122	0.131	0.134	0.161	0.142	0.140	0.138	0.135	0.134	0.128
Sector: Services	0.231	0.186	0.215	0.200	0.234	0.243	0.226	0.276	0.242	0.262
Occupation: STEM	0.003	0.001	0.005	0.005	0.007	0.007	0.007	0.009	0.008	0.009
D. Real monthly earnings										
Urban	539,281	538,921	546,006	564,167	569,131	597,107	607,002	602,954	585,825	594,071
Rural	333,284	331,863	335,225	362,220	339,247	367,432	357,491	365,652	375,807	394,925

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

Table A6 Youth labor market indicators by geographic regions, 2017

	Bogotá	Eastern	Central	Pacific	Caribbean
A. Time use					
Youth					
Working	0.456	0.371	0.390	0.374	0.338
Seeking work	0.062	0.039	0.033	0.029	0.034
Studying	0.332	0.373	0.332	0.359	0.368
Other	0.151	0.217	0.245	0.238	0.260
Adults					
Working	0.711	0.633	0.624	0.645	0.645
Seeking work	0.037	0.027	0.024	0.016	0.019
Studying	0.006	0.007	0.006	0.006	0.003
Other	0.246	0.333	0.347	0.333	0.333
B. Labor market indicators					
Youth					
Labor force participation	0.648	0.569	0.581	0.579	0.517
Employment rate	0.533	0.489	0.483	0.479	0.443
Unemployment rate	0.178	0.141	0.168	0.172	0.144
Adults					
Labor force participation	0.852	0.819	0.775	0.819	0.797
Employment rate	0.793	0.762	0.717	0.763	0.752
Unemployment rate	0.070	0.070	0.075	0.068	0.056
C. Employment quality					
Youth					
Wage earners	0.783	0.573	0.660	0.509	0.425
Informality	0.411	0.669	0.599	0.706	0.778
Sector: Agriculture	0.006	0.226	0.190	0.230	0.187
Sector: Manufacturing	0.212	0.209	0.195	0.197	0.176
Sector: Services	0.783	0.565	0.615	0.573	0.638
Occupation: STEM	0.102	0.044	0.056	0.048	0.037
Adults					
Wage earners	0.602	0.428	0.533	0.407	0.364
Informality	0.419	0.644	0.552	0.661	0.715
Sector: Agriculture	0.006	0.214	0.197	0.229	0.172
Sector: Manufacturing	0.217	0.187	0.194	0.194	0.182
Sector: Services	0.777	0.599	0.609	0.577	0.646
Occupation: STEM	0.092	0.047	0.054	0.048	0.044
D. Real monthly earnings					
Youth	677,945	542,382	576,063	494,380	451,173
Adults	843,413	666,472	697,949	615,475	579,759

Source: Authors' elaboration from GEIH third quarter microdata for 2017.
Notes: Bogotá includes the capital district; Eastern includes the departments of Boyacá, Cundinamarca, Meta, Norte de Santander, and Santander; Central includes Antioquia, Caldas, Caquetá, Huila, Quindí, Risaralda, and Tolima; Pacific includes Cauca, Chocó, and Nariño, Caribbean includes Atlántico, Bolívar, César, Córdova, La Guajira, Magdalena, and Sucre.

Table A7 Trends in youth labor market indicators by educational level

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Skilled										
Working	0.663	0.685	0.655	0.681	0.661	0.665	0.669	0.690	0.669	0.675
Seeking work	0.126	0.109	0.097	0.090	0.064	0.066	0.068	0.076	0.077	0.071
Studying	0.061	0.068	0.077	0.080	0.089	0.091	0.090	0.082	0.074	0.066
Other	0.150	0.138	0.171	0.150	0.186	0.178	0.173	0.152	0.180	0.187
Unskilled										
Working	0.372	0.385	0.385	0.402	0.401	0.395	0.399	0.414	0.407	0.404
Seeking work	0.069	0.073	0.057	0.055	0.045	0.038	0.041	0.047	0.043	0.044
Studying	0.351	0.344	0.350	0.337	0.321	0.345	0.344	0.331	0.327	0.326
Other	0.207	0.198	0.208	0.206	0.233	0.222	0.216	0.207	0.223	0.226
B. Labor market indicators										
Skilled										
Labor force participation	0.903	0.907	0.901	0.912	0.894	0.901	0.893	0.902	0.901	0.911
Employment rate	0.723	0.747	0.733	0.754	0.747	0.758	0.757	0.765	0.756	0.769
Unemployment rate	0.200	0.177	0.186	0.173	0.164	0.159	0.152	0.152	0.160	0.155
Unskilled										
Labor force participation	0.578	0.604	0.624	0.627	0.644	0.625	0.624	0.631	0.614	0.624
Employment rate	0.446	0.460	0.485	0.500	0.514	0.512	0.512	0.522	0.509	0.510
Unemployment rate	0.230	0.238	0.223	0.204	0.201	0.181	0.180	0.172	0.170	0.183
C. Employment quality										
Skilled										
Salaried occupation	0.748	0.729	0.718	0.714	0.710	0.723	0.752	0.752	0.743	0.730
Informality	0.280	0.288	0.334	0.326	0.333	0.320	0.297	0.281	0.282	0.291
Sector: Agriculture	0.017	0.026	0.016	0.022	0.020	0.014	0.009	0.017	0.026	0.031

(*Continued*)

Table A7 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Sector: Manufacturing	0.174	0.152	0.166	0.180	0.160	0.175	0.175	0.175	0.167	0.170
Sector: Services	0.809	0.823	0.818	0.798	0.821	0.811	0.816	0.808	0.808	0.800
Occupation: STEM	0.207	0.160	0.183	0.180	0.187	0.174	0.195	0.199	0.234	0.208
Unskilled										
Salaried occupation	0.638	0.665	0.628	0.621	0.626	0.606	0.629	0.637	0.633	0.621
Informality	0.635	0.627	0.662	0.667	0.663	0.673	0.665	0.637	0.631	0.641
Sector: Agriculture	0.073	0.080	0.079	0.086	0.078	0.080	0.090	0.092	0.101	0.108
Sector: Manufacturing	0.234	0.219	0.220	0.229	0.236	0.219	0.221	0.211	0.213	0.205
Sector: Services	0.694	0.701	0.701	0.685	0.686	0.701	0.690	0.696	0.686	0.687
Occupation: STEM	0.016	0.017	0.032	0.026	0.029	0.031	0.028	0.035	0.029	0.025
D. Real monthly earnings										
Skilled	901,194	900,018	892,860	888,346	866,497	884,256	890,851	857,286	861,026	821,858
Unskilled	485,135	488,930	495,174	499,146	499,384	511,002	509,471	515,089	501,342	512,423

Source: Authors' elaboration from GEIH third quarter microdata for 2008-2017.
Notes: We define skilled individuals as those who report at least some post-secondary education. Unskilled individuals are those who have complete high school or less.

Table A8 Trends in youth labor market indicators by SES

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Medium/High										
Working	0.387	0.383	0.392	0.401	0.402	0.404	0.412	0.411	0.389	0.408
Seeking work	0.050	0.048	0.037	0.040	0.035	0.031	0.030	0.036	0.035	0.042
Studying	0.419	0.441	0.437	0.437	0.423	0.434	0.434	0.434	0.445	0.430
Other	0.144	0.127	0.134	0.123	0.141	0.132	0.124	0.119	0.131	0.120
Low										
Working	0.355	0.368	0.366	0.375	0.376	0.374	0.375	0.389	0.390	0.377
Seeking work	0.059	0.061	0.050	0.048	0.039	0.036	0.042	0.044	0.042	0.038
Studying	0.330	0.337	0.338	0.333	0.326	0.338	0.340	0.339	0.332	0.333
Other	0.256	0.234	0.246	0.244	0.259	0.252	0.243	0.228	0.236	0.252
B. Labor market indicators										
Medium/High										
Labor force participation	0.546	0.550	0.582	0.584	0.599	0.593	0.597	0.575	0.565	0.577
Employment rate	0.445	0.447	0.472	0.487	0.496	0.498	0.508	0.494	0.481	0.486
Unemployment rate	0.185	0.187	0.189	0.166	0.173	0.160	0.150	0.140	0.150	0.159
Low										
Labor force participation	0.527	0.557	0.575	0.572	0.585	0.577	0.576	0.582	0.573	0.574
Employment rate	0.423	0.442	0.462	0.465	0.480	0.482	0.482	0.487	0.482	0.478
Unemployment rate	0.199	0.206	0.196	0.187	0.179	0.165	0.163	0.164	0.159	0.168

(*Continued*)

Table A8 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
C. Employment quality										
Medium/High										
Salaried occupation	0.686	0.704	0.684	0.665	0.696	0.683	0.703	0.702	0.716	0.719
Informality	0.509	0.496	0.521	0.541	0.520	0.489	0.472	0.443	0.449	0.426
Sector: Agriculture	0.038	0.039	0.027	0.022	0.027	0.019	0.038	0.018	0.021	0.010
Sector: Manufacturing	0.214	0.188	0.202	0.194	0.195	0.183	0.171	0.178	0.175	0.171
Sector: Services	0.748	0.773	0.770	0.785	0.777	0.798	0.792	0.804	0.804	0.819
Occupation: STEM	0.079	0.081	0.094	0.105	0.103	0.121	0.112	0.130	0.132	0.130
Low										
Salaried occupation	0.565	0.571	0.555	0.571	0.558	0.567	0.571	0.587	0.584	0.574
Informality	0.756	0.748	0.764	0.743	0.742	0.721	0.709	0.682	0.665	0.679
Sector: Agriculture	0.213	0.219	0.205	0.194	0.181	0.177	0.174	0.166	0.177	0.185
Sector: Manufacturing	0.230	0.212	0.217	0.238	0.223	0.219	0.216	0.219	0.211	0.210
Sector: Services	0.557	0.569	0.578	0.567	0.595	0.605	0.610	0.614	0.612	0.605
Occupation: STEM	0.019	0.016	0.026	0.022	0.032	0.031	0.039	0.043	0.046	0.038
D. Real monthly earnings										
Medium/High	675,895	736,662	754,662	731,048	730,208	793,309	785,198	783,915	752,541	760,710
Low	423,830	433,017	431,666	467,717	467,387	479,347	493,527	498,883	497,061	495,066

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: We define individuals as Medium/High SES as those who report their strata as 3, 4, 5, or 6. Individuals with low SES are those who report their strata as 1 and 2.

Table A9 Trends in youth labor market indicators by migration status

	2013	2014	2015	2016	2017
A. Time use					
Non-migrants					
Working	0.370	0.373	0.383	0.378	0.372
Seeking work	0.036	0.039	0.042	0.039	0.038
Studying	0.375	0.377	0.374	0.373	0.373
Other	0.219	0.212	0.201	0.210	0.217
Migrants					
Working	0.440	0.442	0.445	0.441	0.436
Seeking work	0.029	0.031	0.037	0.041	0.042
Studying	0.256	0.260	0.266	0.262	0.255
Other	0.275	0.266	0.252	0.256	0.268
B. Labor market indicators					
Non-migrants					
Labor force participation	0.572	0.570	0.571	0.563	0.563
Employment rate	0.480	0.481	0.480	0.473	0.471
Unemployment rate	0.162	0.157	0.160	0.159	0.164
Migrants					
Labor force participation	0.631	0.637	0.630	0.620	0.632
Employment rate	0.535	0.539	0.540	0.533	0.537
Unemployment rate	0.153	0.154	0.143	0.141	0.151
C. Employment quality					
Non-migrants					
Wage earners	0.559	0.577	0.588	0.581	0.582
Informality	0.684	0.674	0.648	0.639	0.634
Sector: Agriculture	0.163	0.167	0.149	0.164	0.171
Sector: Manufacturing	0.209	0.209	0.206	0.204	0.193
Sector: Services	0.629	0.624	0.645	0.632	0.635
Occupation: STEM	0.049	0.053	0.062	0.064	0.058
Migrants					
Wage earners	0.675	0.663	0.656	0.674	0.640
Informality	0.642	0.615	0.604	0.606	0.618
Sector: Agriculture	0.157	0.140	0.160	0.165	0.152
Sector: Manufacturing	0.214	0.184	0.208	0.192	0.211
Sector: Services	0.629	0.676	0.632	0.644	0.637
Occupation: STEM	0.058	0.059	0.052	0.057	0.055
D. Real monthly labor income					
Non-migrants	537,304	538,153	541,503	531,831	542,004
Migrants	603,000	641,155	625,752	595,243	598,913

Source: Authors' elaboration from GEIH third quarter microdata for 2008-2017.
Notes: We define individuals as migrants if they report living in a different municipality 5 years before the survey and non-migrants otherwise.

Table A10 Trends in youth labor market indicators by level of experience

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
With experience										
Working	0.695	0.675	0.668	0.689	0.673	0.684	0.685	0.701	0.696	0.689
Seeking work	0.112	0.122	0.096	0.088	0.072	0.067	0.076	0.080	0.079	0.075
Studying	0.047	0.053	0.066	0.066	0.076	0.068	0.075	0.070	0.063	0.062
Other	0.145	0.151	0.170	0.156	0.179	0.180	0.165	0.149	0.162	0.175
Without experience										
Working	0.659	0.655	0.614	0.607	0.588	0.575	0.591	0.610	0.630	0.598
Seeking work	0.093	0.070	0.054	0.057	0.043	0.039	0.035	0.048	0.040	0.045
Studying	0.122	0.145	0.194	0.191	0.207	0.225	0.219	0.201	0.195	0.192
Other	0.126	0.131	0.138	0.145	0.161	0.161	0.155	0.141	0.135	0.165
B. Labor market indicators										
With experience										
Labor force participation	-	-	-	-	-	-	-	-	-	-
Employment rate	0.784	0.768	0.786	0.805	0.804	0.817	0.818	0.827	0.825	0.822
Unemployment rate	0.216	0.232	0.214	0.195	0.196	0.183	0.182	0.173	0.175	0.178
Without experience										
Labor force participation	-	-	-	-	-	-	-	-	-	-
Employment rate	0.834	0.856	0.856	0.859	0.878	0.895	0.909	0.883	0.894	0.883
Unemployment rate	0.166	0.144	0.144	0.141	0.122	0.105	0.091	0.117	0.106	0.117
C. Employment quality										
With experience										

(*Continued*)

Table A10 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Salaried occupation	0.669	0.669	0.654	0.655	0.655	0.650	0.669	0.670	0.665	0.656
Informality	0.624	0.644	0.659	0.654	0.645	0.615	0.598	0.578	0.572	0.575
Sector: Agriculture	0.152	0.180	0.161	0.151	0.144	0.132	0.126	0.122	0.140	0.140
Sector: Manufacturing	0.239	0.216	0.236	0.249	0.230	0.231	0.221	0.222	0.215	0.209
Sector: Services	0.609	0.604	0.603	0.600	0.626	0.637	0.653	0.656	0.645	0.651
Occupation: STEM	0.043	0.032	0.047	0.045	0.051	0.055	0.060	0.069	0.069	0.063
Without experience										
Salaried occupation	0.488	0.470	0.421	0.418	0.416	0.423	0.418	0.439	0.446	0.439
Informality	0.789	0.799	0.832	0.830	0.829	0.820	0.819	0.790	0.781	0.774
Sector: Agriculture	0.223	0.241	0.250	0.241	0.227	0.230	0.247	0.217	0.220	0.235
Sector: Manufacturing	0.189	0.189	0.166	0.184	0.182	0.161	0.165	0.169	0.170	0.167
Sector: Services	0.587	0.569	0.583	0.575	0.591	0.609	0.588	0.613	0.610	0.598
Occupation: STEM	0.028	0.025	0.029	0.031	0.037	0.040	0.042	0.041	0.047	0.043
D. Real monthly earnings										
With experience	542,193	533,520	536,718	559,216	560,676	599,597	610,078	598,259	585,625	591,337
Without experience	421,243	422,818	418,807	423,611	418,927	412,597	411,887	445,508	432,209	442,297

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

Notes: We define individuals with experience as those who report that this is not their first job or first time seeking employment. Individuals without experience are those who report being employed or looking for work for the first time.

Table A11 Trends in labor market indicators for youth and adults (individuals ≥ 18 years)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Youth										
Working	0.494	0.502	0.499	0.511	0.508	0.510	0.513	0.526	0.514	0.509
Seeking work	0.076	0.078	0.064	0.061	0.050	0.047	0.051	0.055	0.052	0.052
Studying	0.161	0.161	0.170	0.168	0.157	0.171	0.174	0.172	0.172	0.174
Other	0.268	0.259	0.267	0.260	0.286	0.271	0.262	0.247	0.261	0.265
Adults										
Working	0.621	0.626	0.631	0.644	0.634	0.637	0.647	0.659	0.650	0.649
Seeking work	0.034	0.038	0.033	0.028	0.027	0.025	0.024	0.027	0.026	0.024
Studying	0.004	0.005	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.006
Other	0.340	0.331	0.331	0.323	0.334	0.333	0.324	0.308	0.319	0.321
B. Labor market indicators										
Youth										
Labor force participation	0.695	0.719	0.731	0.734	0.742	0.739	0.736	0.740	0.728	0.736
Employment rate	0.559	0.575	0.592	0.604	0.612	0.619	0.618	0.625	0.612	0.616
Unemployment rate	0.194	0.201	0.191	0.178	0.174	0.162	0.160	0.155	0.159	0.164
Adults										
Labor force participation	0.753	0.777	0.792	0.795	0.803	0.808	0.805	0.810	0.809	0.809
Employment rate	0.693	0.708	0.727	0.737	0.745	0.753	0.755	0.758	0.755	0.754
Unemployment rate	0.079	0.089	0.082	0.073	0.072	0.068	0.062	0.064	0.067	0.068
C. Employment quality										
Youth										

(*Continued*)

Table A11 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Wage earners	0.612	0.615	0.599	0.600	0.605	0.606	0.621	0.626	0.621	0.617
Informality	0.658	0.672	0.684	0.678	0.666	0.645	0.630	0.610	0.603	0.605
Sector: Agriculture	0.166	0.187	0.170	0.158	0.147	0.142	0.140	0.134	0.148	0.149
Sector: Manufacturing	0.222	0.212	0.219	0.234	0.222	0.218	0.213	0.213	0.205	0.202
Sector: Services	0.612	0.602	0.612	0.607	0.631	0.640	0.647	0.653	0.647	0.649
Occupation: STEM	0.041	0.032	0.046	0.045	0.052	0.056	0.061	0.066	0.068	0.062
Adults										
Wage earners	0.465	0.456	0.449	0.444	0.446	0.461	0.467	0.474	0.472	0.470
Informality	0.654	0.666	0.671	0.658	0.654	0.631	0.618	0.614	0.603	0.596
Sector: Agriculture	0.173	0.176	0.178	0.170	0.168	0.163	0.161	0.158	0.159	0.165
Sector: Manufacturing	0.202	0.208	0.213	0.214	0.208	0.201	0.201	0.197	0.197	0.195
Sector: Services	0.625	0.616	0.609	0.616	0.624	0.636	0.639	0.644	0.644	0.641
Occupation: STEM	0.039	0.037	0.042	0.047	0.048	0.055	0.054	0.057	0.054	0.057
D. Real monthly earnings										
Youth	518,016	513,905	524,184	543,609	546,754	574,451	585,558	578,649	564,534	568,861
Adults	648,638	633,078	653,693	671,388	667,310	690,540	698,319	676,237	681,665	681,402

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

Table A12 Trends in youth labor market indicators by gender (individuals ≥ 18 years)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Male										
Working	0.648	0.665	0.655	0.672	0.663	0.667	0.664	0.671	0.666	0.661
Seeking work	0.094	0.098	0.083	0.080	0.070	0.063	0.069	0.066	0.067	0.066
Studying	0.169	0.161	0.170	0.166	0.161	0.169	0.174	0.170	0.171	0.172
Other	0.089	0.077	0.092	0.081	0.106	0.101	0.093	0.093	0.096	0.100
Female										
Working	0.346	0.347	0.349	0.353	0.360	0.358	0.367	0.385	0.368	0.362
Seeking work	0.060	0.060	0.046	0.043	0.031	0.033	0.034	0.044	0.039	0.038
Studying	0.154	0.161	0.169	0.170	0.153	0.172	0.175	0.173	0.173	0.175
Other	0.440	0.432	0.436	0.434	0.457	0.437	0.424	0.397	0.420	0.425
B. Labor market indicators										
Male										
Labor force participation	0.817	0.843	0.850	0.852	0.860	0.849	0.847	0.845	0.839	0.838
Employment rate	0.692	0.714	0.726	0.741	0.742	0.744	0.741	0.747	0.737	0.737
Unemployment rate	0.153	0.152	0.146	0.130	0.137	0.123	0.124	0.116	0.121	0.121
Female										
Labor force participation	0.577	0.600	0.617	0.618	0.629	0.632	0.629	0.638	0.621	0.637
Employment rate	0.432	0.441	0.462	0.469	0.488	0.498	0.499	0.506	0.491	0.497
Unemployment rate	0.251	0.266	0.251	0.242	0.223	0.213	0.206	0.206	0.209	0.220

(*Continued*)

Table A12 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
C. Employment quality										
Male										
Wage earners	0.595	0.602	0.596	0.599	0.607	0.610	0.621	0.615	0.610	0.614
Informality	0.675	0.695	0.690	0.690	0.679	0.651	0.644	0.624	0.618	0.612
Sector: Agriculture	0.230	0.261	0.233	0.216	0.200	0.195	0.192	0.181	0.203	0.201
Sector: Manufacturing	0.252	0.235	0.254	0.274	0.264	0.262	0.254	0.264	0.253	0.247
Sector: Services	0.518	0.503	0.513	0.510	0.536	0.543	0.554	0.555	0.543	0.552
Occupation: STEM	0.040	0.032	0.051	0.049	0.058	0.059	0.061	0.073	0.076	0.068
Female										
Wage earners	0.639	0.636	0.604	0.601	0.602	0.601	0.622	0.641	0.638	0.620
Informality	0.633	0.635	0.675	0.659	0.647	0.635	0.610	0.589	0.582	0.596
Sector: Agriculture	0.059	0.060	0.064	0.062	0.064	0.062	0.061	0.062	0.065	0.071
Sector: Manufacturing	0.171	0.172	0.160	0.169	0.157	0.149	0.151	0.134	0.132	0.132
Sector: Services	0.770	0.769	0.775	0.769	0.779	0.790	0.788	0.804	0.803	0.797
Occupation: STEM	0.043	0.033	0.038	0.039	0.043	0.051	0.061	0.057	0.057	0.053
D. Real monthly earnings										
Male	529,460	525,541	541,728	564,638	565,404	595,007	592,135	598,040	579,678	589,262
Female	499,940	495,359	496,826	510,062	518,452	543,093	575,902	550,245	542,167	538,562

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

Table A13 Trends in youth labor market indicators by region (individuals ≥ 18 years)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Urban										
Working	0.500	0.505	0.500	0.516	0.517	0.517	0.525	0.535	0.517	0.511
Seeking work	0.081	0.083	0.070	0.067	0.053	0.051	0.054	0.058	0.056	0.058
Studying	0.185	0.184	0.194	0.191	0.180	0.194	0.195	0.195	0.195	0.196
Other	0.234	0.228	0.236	0.226	0.251	0.238	0.226	0.212	0.232	0.236
Rural										
Working	0.474	0.492	0.495	0.495	0.473	0.484	0.464	0.490	0.502	0.505
Seeking work	0.059	0.061	0.042	0.041	0.037	0.034	0.040	0.043	0.039	0.027
Studying	0.079	0.078	0.084	0.088	0.072	0.084	0.093	0.079	0.080	0.084
Other	0.388	0.369	0.379	0.376	0.418	0.398	0.403	0.388	0.379	0.384
B. Labor market indicators										
Urban										
Labor force participation	0.711	0.735	0.747	0.747	0.757	0.752	0.752	0.751	0.738	0.742
Employment rate	0.568	0.577	0.593	0.606	0.617	0.624	0.625	0.632	0.614	0.608
Unemployment rate	0.201	0.214	0.205	0.188	0.185	0.171	0.169	0.160	0.169	0.181
Rural										
Labor force participation	0.637	0.664	0.677	0.689	0.683	0.689	0.670	0.695	0.685	0.712
Employment rate	0.531	0.566	0.586	0.595	0.594	0.603	0.589	0.599	0.605	0.645
Unemployment rate	0.167	0.147	0.135	0.137	0.131	0.125	0.122	0.138	0.117	0.093

(*Continued*)

Table A13 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
C. Employment quality										
Urban										
Wage earners	0.641	0.652	0.640	0.640	0.645	0.640	0.658	0.671	0.668	0.659
Informality	0.602	0.606	0.627	0.617	0.603	0.588	0.571	0.546	0.545	0.546
Sector: Agriculture	0.041	0.048	0.040	0.030	0.032	0.027	0.029	0.029	0.037	0.036
Sector: Manufacturing	0.246	0.231	0.239	0.251	0.240	0.234	0.227	0.228	0.220	0.219
Sector: Services	0.713	0.720	0.721	0.719	0.728	0.739	0.743	0.743	0.743	0.746
Occupation: STEM	0.051	0.041	0.057	0.056	0.063	0.068	0.073	0.080	0.082	0.075
Rural										
Wage earners	0.504	0.484	0.454	0.459	0.447	0.477	0.466	0.436	0.431	0.454
Informality	0.871	0.907	0.886	0.896	0.914	0.864	0.877	0.874	0.843	0.834
Sector: Agriculture	0.627	0.672	0.623	0.609	0.596	0.588	0.602	0.566	0.608	0.586
Sector: Manufacturing	0.132	0.142	0.146	0.176	0.153	0.155	0.154	0.149	0.142	0.137
Sector: Services	0.241	0.186	0.231	0.215	0.250	0.257	0.245	0.285	0.250	0.277
Occupation: STEM	0.004	0.001	0.007	0.006	0.009	0.008	0.009	0.011	0.010	0.010
D. Real monthly earnings										
Urban	560,863	557,661	568,754	587,201	592,250	619,372	631,007	623,587	603,425	607,953
Rural	349,239	343,785	352,753	378,546	356,741	391,381	381,944	378,846	394,458	409,257

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

Table A14 Trends in youth labor market indicators by educational level (individuals ≥ 18 years)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Skilled										
Working	0.664	0.686	0.655	0.683	0.661	0.668	0.673	0.693	0.671	0.676
Seeking work	0.126	0.109	0.097	0.090	0.064	0.066	0.069	0.076	0.076	0.071
Studying	0.060	0.066	0.077	0.077	0.088	0.088	0.085	0.079	0.073	0.065
Other	0.150	0.139	0.170	0.150	0.187	0.178	0.174	0.152	0.180	0.188
Unskilled										
Working	0.438	0.446	0.444	0.461	0.460	0.454	0.453	0.468	0.458	0.456
Seeking work	0.080	0.084	0.065	0.063	0.050	0.044	0.046	0.052	0.048	0.050
Studying	0.258	0.257	0.265	0.254	0.239	0.263	0.267	0.256	0.253	0.253
Other	0.224	0.213	0.226	0.222	0.252	0.239	0.234	0.223	0.241	0.242
B. Labor market indicators										
Skilled										
Labor force participation	0.904	0.909	0.901	0.913	0.894	0.902	0.895	0.905	0.902	0.912
Employment rate	0.724	0.749	0.734	0.757	0.747	0.759	0.760	0.768	0.758	0.770
Unemployment rate	0.200	0.177	0.186	0.171	0.164	0.159	0.151	0.151	0.159	0.156
Unskilled										
Labor force participation	0.661	0.685	0.701	0.702	0.717	0.699	0.695	0.694	0.680	0.692
Employment rate	0.511	0.523	0.548	0.559	0.573	0.573	0.571	0.576	0.562	0.566
Unemployment rate	0.227	0.237	0.219	0.203	0.200	0.180	0.179	0.171	0.172	0.183

(*Continued*)

Table A14 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
C. Employment quality										
Skilled										
Wage earners	0.749	0.729	0.717	0.715	0.711	0.724	0.753	0.752	0.743	0.730
Informality	0.279	0.287	0.332	0.324	0.331	0.318	0.295	0.280	0.281	0.290
Sector: Agriculture	0.017	0.026	0.017	0.022	0.020	0.013	0.009	0.017	0.025	0.031
Sector: Manufacturing	0.174	0.152	0.166	0.181	0.160	0.175	0.175	0.175	0.167	0.169
Sector: Services	0.809	0.822	0.817	0.797	0.820	0.811	0.816	0.808	0.808	0.800
Occupation: STEM	0.207	0.160	0.183	0.180	0.188	0.175	0.195	0.199	0.234	0.208
Unskilled										
Wage earners	0.648	0.672	0.639	0.630	0.636	0.618	0.635	0.646	0.641	0.629
Informality	0.617	0.610	0.646	0.650	0.648	0.657	0.653	0.620	0.617	0.630
Sector: Agriculture	0.070	0.077	0.075	0.083	0.075	0.076	0.088	0.091	0.097	0.103
Sector: Manufacturing	0.234	0.221	0.225	0.234	0.239	0.221	0.222	0.214	0.214	0.207
Sector: Services	0.695	0.701	0.701	0.683	0.686	0.703	0.690	0.695	0.689	0.689
Occupation: STEM	0.017	0.017	0.033	0.027	0.030	0.033	0.029	0.036	0.029	0.026
D. Real monthly earnings										
Skilled	901,546	900,207	894,645	889,313	869,862	886,454	892,135	858,124	861,382	822,645
Unskilled	494,144	497,160	505,287	509,011	508,848	519,201	517,179	521,882	507,599	517,198

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: We define skilled individuals as those who report at least some post-secondary education. Unskilled individuals are those who have complete high school or less.

Table A15 Trends in youth labor market indicators by SES (individuals ≥ 18 years)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
Medium/High										
Working	0.515	0.512	0.508	0.527	0.522	0.517	0.524	0.534	0.501	0.518
Seeking work	0.066	0.065	0.049	0.052	0.044	0.040	0.038	0.046	0.045	0.054
Studying	0.252	0.272	0.283	0.277	0.270	0.292	0.294	0.285	0.301	0.288
Other	0.167	0.151	0.160	0.144	0.165	0.151	0.144	0.135	0.153	0.140
Low										
Working	0.487	0.501	0.495	0.507	0.505	0.509	0.510	0.525	0.519	0.508
Seeking work	0.081	0.084	0.068	0.066	0.053	0.051	0.058	0.060	0.056	0.052
Studying	0.118	0.128	0.136	0.134	0.127	0.135	0.138	0.142	0.139	0.142
Other	0.314	0.287	0.300	0.293	0.315	0.305	0.294	0.274	0.286	0.299
B. Labor market indicators										
Medium/High										
Labor force participation	0.705	0.714	0.734	0.739	0.754	0.738	0.736	0.724	0.708	0.720
Employment rate	0.574	0.581	0.598	0.618	0.624	0.621	0.625	0.625	0.602	0.607
Unemployment rate	0.186	0.187	0.186	0.164	0.172	0.159	0.151	0.136	0.149	0.157
Low										
Labor force participation	0.696	0.728	0.738	0.737	0.743	0.742	0.739	0.747	0.735	0.742
Employment rate	0.559	0.579	0.593	0.599	0.610	0.618	0.616	0.626	0.614	0.615
Unemployment rate	0.196	0.205	0.197	0.187	0.179	0.167	0.167	0.163	0.165	0.171

(*Continued*)

Table A15 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
C. Employment quality										
Medium/High										
Wage earners	0.701	0.718	0.696	0.678	0.706	0.693	0.718	0.713	0.729	0.725
Informality	0.476	0.469	0.490	0.512	0.493	0.466	0.450	0.419	0.429	0.413
Sector: Agriculture	0.036	0.038	0.025	0.019	0.028	0.019	0.035	0.016	0.021	0.010
Sector: Manufacturing	0.212	0.187	0.206	0.194	0.197	0.181	0.174	0.180	0.179	0.172
Sector: Services	0.752	0.775	0.768	0.787	0.775	0.801	0.790	0.804	0.800	0.819
Occupation: STEM	0.084	0.084	0.100	0.111	0.108	0.126	0.118	0.136	0.137	0.133
Low										
Wage earners	0.581	0.596	0.585	0.595	0.585	0.593	0.599	0.612	0.605	0.599
Informality	0.726	0.716	0.729	0.709	0.706	0.690	0.676	0.653	0.636	0.653
Sector: Agriculture	0.197	0.202	0.182	0.171	0.158	0.160	0.150	0.151	0.164	0.166
Sector: Manufacturing	0.236	0.221	0.226	0.248	0.232	0.230	0.227	0.227	0.215	0.215
Sector: Services	0.568	0.577	0.592	0.581	0.610	0.610	0.623	0.623	0.621	0.618
Occupation: STEM	0.021	0.018	0.030	0.024	0.036	0.034	0.043	0.047	0.051	0.042
D. Real monthly earnings										
Medium/High	698,510	754,165	777,570	750,044	750,656	814,320	802,351	804,612	767,492	769,925
Low	443,185	450,694	452,873	489,867	490,885	501,767	520,435	517,503	515,560	509,870

Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: We define individuals as Medium/High SES as those who report their strata as 3, 4, 5, or 6. Individuals with low SES are those who report their strata as 1 and 2.

Table A16 Trends in youth labor market indicators by migration status (individuals ≥ 18 years)

	2013	2014	2015	2016	2017
A. Time use					
Non-migrants					
Working	0.508	0.510	0.522	0.510	0.507
Seeking work	0.050	0.054	0.057	0.054	0.052
Studying	0.178	0.180	0.179	0.179	0.182
Other	0.265	0.256	0.243	0.258	0.259
Migrants					
Working	0.522	0.527	0.545	0.532	0.521
Seeking work	0.035	0.038	0.044	0.048	0.050
Studying	0.141	0.149	0.141	0.144	0.141
Other	0.302	0.285	0.270	0.276	0.288
B. Labor market indicators					
Non-migrants					
Labor force participation	0.742	0.736	0.740	0.728	0.735
Employment rate	0.620	0.617	0.622	0.608	0.611
Unemployment rate	0.164	0.161	0.160	0.165	0.168
Migrants					
Labor force participation	0.727	0.736	0.737	0.730	0.742
Employment rate	0.617	0.622	0.638	0.630	0.632
Unemployment rate	0.151	0.155	0.135	0.137	0.148
C. Employment quality					
Non-migrants					
Wage earners	0.587	0.608	0.614	0.606	0.609
Informality	0.652	0.640	0.617	0.608	0.606
Sector: Agriculture	0.143	0.143	0.131	0.146	0.150
Sector: Manufacturing	0.218	0.219	0.212	0.207	0.198
Sector: Services	0.640	0.638	0.657	0.646	0.651
Occupation: STEM	0.054	0.060	0.069	0.070	0.063
Migrants					
Wage earners	0.690	0.677	0.677	0.684	0.649
Informality	0.612	0.590	0.577	0.582	0.601
Sector: Agriculture	0.142	0.129	0.145	0.157	0.146
Sector: Manufacturing	0.217	0.189	0.217	0.196	0.214
Sector: Services	0.641	0.682	0.639	0.647	0.640
Occupation: STEM	0.063	0.063	0.056	0.060	0.058
D. Real monthly labor income					
Non-migrants	563,875	566,980	563,227	553,099	558,292
Migrants	620,364	661,810	647,402	611,072	612,268

Source: Authors' elaboration from GEIH third quarter microdata for 2008-2017.
Notes: We define individuals as migrants if they report living in a different municipality 5 years before the survey and non-migrants otherwise.

Table A17 Trends in youth labor market indicators by level of experience (individuals ≥18 years)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A. Time use										
With experience										
Working	0.705	0.687	0.681	0.702	0.690	0.697	0.701	0.716	0.706	0.695
Seeking work	0.113	0.123	0.096	0.090	0.073	0.069	0.077	0.080	0.080	0.075
Studying	0.039	0.043	0.056	0.053	0.059	0.057	0.059	0.057	0.053	0.055
Other	0.143	0.148	0.167	0.155	0.178	0.177	0.163	0.148	0.161	0.175
Without experience										
Working	0.709	0.709	0.677	0.671	0.661	0.655	0.672	0.684	0.696	0.670
Seeking work	0.098	0.076	0.064	0.064	0.047	0.047	0.042	0.055	0.046	0.054
Studying	0.067	0.078	0.113	0.116	0.120	0.130	0.123	0.119	0.111	0.110
Other	0.125	0.137	0.145	0.148	0.172	0.168	0.163	0.142	0.147	0.167
B. Labor market indicators										
With experience										
Labor force participation	-	-	-	-	-	-	-	-	-	-
Employment rate	0.788	0.773	0.793	0.810	0.809	0.821	0.821	0.833	0.828	0.824
Unemployment rate	0.212	0.227	0.207	0.190	0.191	0.179	0.179	0.167	0.172	0.176
Without experience										
Labor force participation	-	-	-	-	-	-	-	-	-	-
Employment rate	0.837	0.853	0.849	0.856	0.872	0.891	0.900	0.880	0.880	0.874
Unemployment rate	0.163	0.147	0.151	0.144	0.128	0.109	0.100	0.120	0.120	0.126

(*Continued*)

Table A17 Continued

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
C. Employment quality										
With experience										
Wage earners	0.671	0.672	0.661	0.657	0.660	0.654	0.677	0.678	0.669	0.658
Informality	0.608	0.628	0.644	0.638	0.625	0.599	0.581	0.562	0.559	0.565
Sector: Agriculture	0.144	0.170	0.155	0.140	0.132	0.125	0.116	0.116	0.133	0.134
Sector: Manufacturing	0.242	0.218	0.235	0.251	0.233	0.233	0.225	0.224	0.215	0.211
Sector: Services	0.615	0.612	0.610	0.609	0.634	0.642	0.659	0.660	0.652	0.656
Occupation: STEM	0.045	0.033	0.049	0.047	0.054	0.057	0.062	0.072	0.071	0.065
Without experience										
Wage earners	0.511	0.511	0.455	0.456	0.455	0.471	0.458	0.477	0.485	0.491
Informality	0.745	0.751	0.776	0.779	0.775	0.773	0.774	0.744	0.731	0.727
Sector: Agriculture	0.204	0.218	0.204	0.204	0.187	0.193	0.212	0.184	0.193	0.196
Sector: Manufacturing	0.187	0.200	0.179	0.192	0.192	0.173	0.178	0.182	0.177	0.175
Sector: Services	0.609	0.582	0.617	0.603	0.620	0.634	0.610	0.635	0.631	0.629
Occupation: STEM	0.034	0.030	0.038	0.041	0.047	0.052	0.056	0.051	0.058	0.054
D. Real monthly earnings										
With experience	552,698	542,829	547,344	571,560	577,223	613,379	625,119	609,815	594,804	597,400
Without experience	455,394	456,405	465,643	465,397	456,607	452,350	457,866	483,739	469,764	475,724

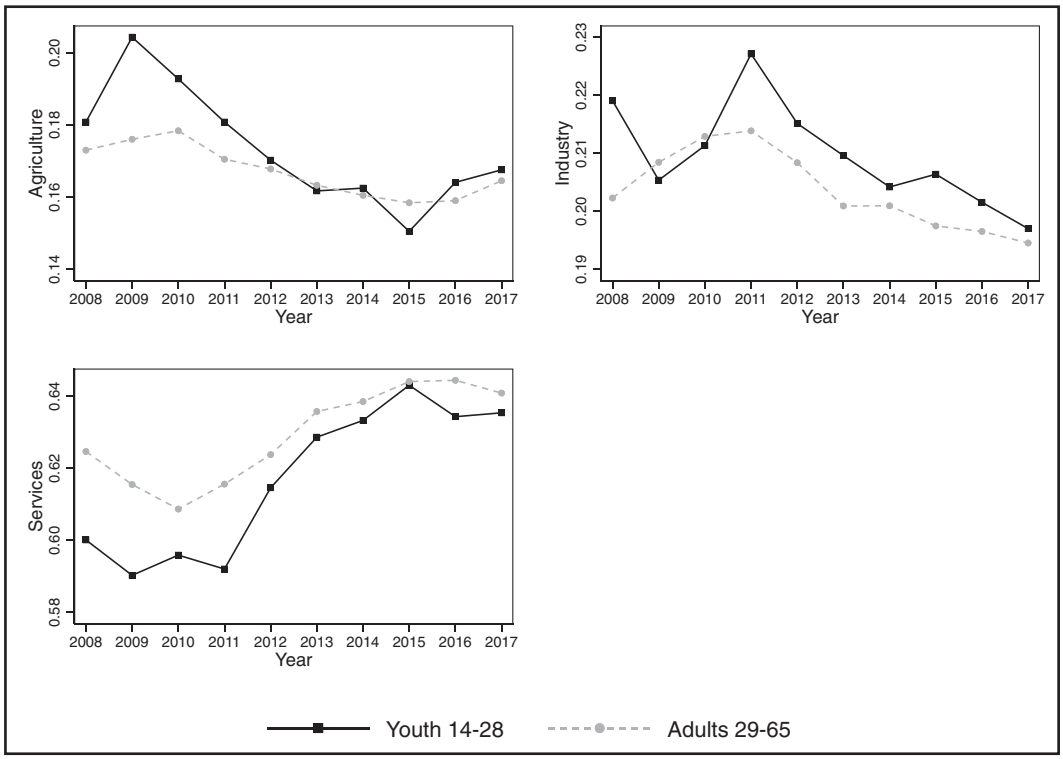
Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.
Notes: We define individuals with experience as those who report that this is not their first job or first time seeking employment. Individuals without experience are those who report being employed or looking for work for the first time.

Figure A1 Seasonality of youth labor market indicators in Colombia.



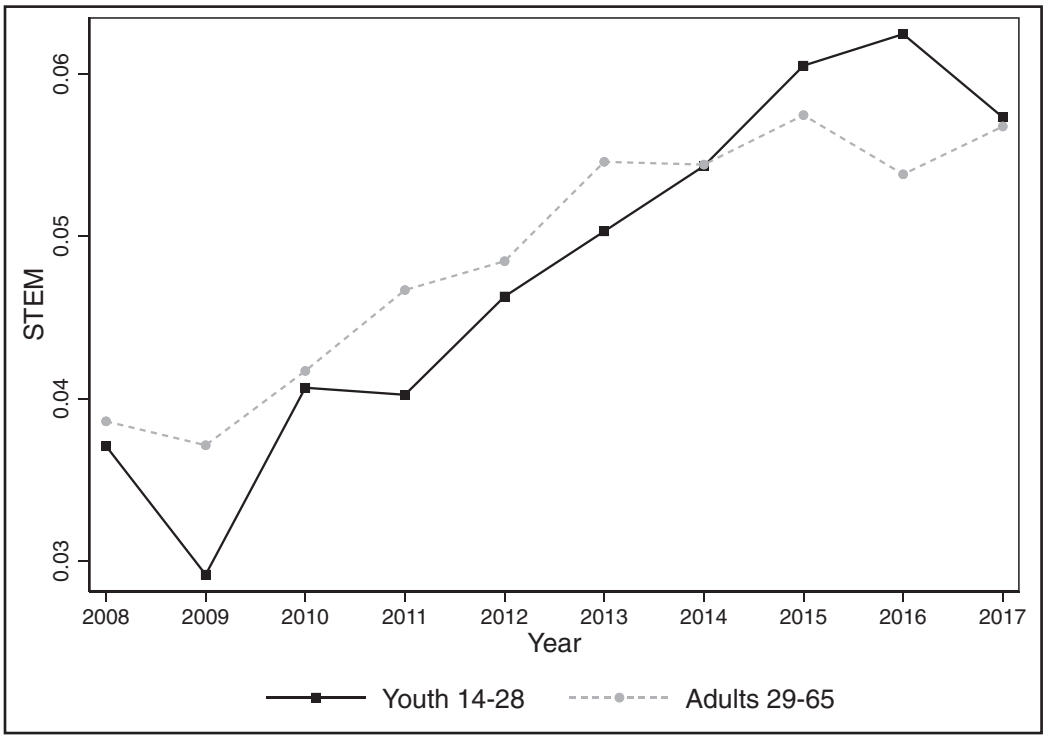
Source: Authors' elaboration from (LABLAC, 2018) data.
Notes: The data for Colombia are drawn from the GEIH from 2008 to 2016. Youth are defined as people aged between 15 and 24.

Figure A2 Trends in economic sector for youth and adults.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.

Figure A3 Trends in STEM occupation for youth and adults.



Source: Authors' elaboration from GEIH third quarter microdata for 2008–2017.